CTPP

Handbook

An Instructional Guide to the 1990 Census Transportation Planning Package

February 1995

U.S. Department of Transportation
Federal Highway Administration

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1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
FHWA-PD-95-019		

4. Title and Subtitle	5. Report Date
CTPP HANDBOOK: An Instructional Guide to the 1990 Census Transportation Planning Package	February 1995
	6. Performing Organization Code

7. Author(s)	8. Performing Organization Report No.
JHK & Associates, Orlando, FL	

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
JHK & Associates 315 E. Robinson Suite 290 Orlando, FL 32801-4328	11. Contract or Grant No. DTFH61-91-C000010

12. Sponsoring Agency Name and Address	13. Type of Report and Period Covered
Office of Environment and Planning Federal Highway Administration 400 Seventh St. SW Washington, DC 20590	Final Report
	14. Sponsoring Agency Code

15. Supplementary Notes

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16. Abstract

This handbook is designed for technical staff as an instructional guide to the 1990 Census Transportaion Planning Package (CTPP) and its potential uses. The CTPP contains 1990 social and economic data by place of residence, place of work, and journey to work, at various levels of detail and geography. The CTPP is the largest national sample of commuter travel characterisitics, and is available for each state and metropolitan area in the U.S.

This handbook gives users an overview of the CTPP, and includes discussions of basic Census defintions and CTPP organization into tables and parts. Users are also oriented in: preparing to use the CTPP for analysis; the potential for applying the CTPP to transportation planning; conducting reasonableness checks of the data; using the CTPP in travel demand forecasting; and accessing CTPP tables and technical assistance.

Self instructional case studies are also included which make use of simple spreadsheets and provide hands-on experience with concepts and potential uses of the CTPP data.

17. Key Words	18. Distribution Statement
CTPP, Census, commuting, planning, socio-economic data, travel behavior, travel demand, travel forecasting	No restrictions. This document is available to the public through the US DOT Warehouse.

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	174 (w/App.)	

Form DOT F 1700.7 (8-72)   Reproduction of completed page authorized

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INTRODUCTION

The purpose of this handbook is to provide an instructional guide to the 1990 Census Transportation Planning Package (CTPP) and its potential uses for transportation planners and others involved in Census data analyses. The CTPP is the largest national sample of commuter travel characteristics available, and contains social and economic data for both the Place of Residence and Place of Work. This handbook is designed to complement other efforts by the Census Bureau and the U.S. Department of Transportation to provide training and guidance on the uses of the CTPP. Several other agencies and organizations have supported the development of the CTPP and related products, including the National Association of Regional Councils (NARC), the American Association of State Highway and Transportation Officials (AASHTO) and individual State Departments of Transportation.

A brochure and video have been prepared that are designed primarily for those managers and officials who would like to find out more about the CTPP and its uses. The focus of these products is to indicate the many ways in which CTPP tabulations can be used in transportation planning applications. This handbook differs from the brochure and video in that it is intended to provide a self-instructional guide to planners and technical analysts who use the CTPP. Two case studies (Travel Demand Characteristics by Urban Area Size and Assessing Commuter Bus Service), are contained in this handbook to provide insight into the practical applications of the data.

Organization of the Handbook

This handbook is primarily intended for technical staff members who elect to find out more detailed information about the CTPP and its applications and those who could not attend the three-day workshops sponsored by the Federal Highway Administration (FHWA) and National Highway Institute (NHI) from 1992 to 1994. This handbook summarizes the content and substance of those workshops, including potential CTPP applications.

Chapter 1 of the handbook gives an **Overview** of the 1990 CTPP, with an explanation of key Census terms, and identifies special features that differentiate it from other Census products. **Chapter 2** discusses the CTPP organization and the geographic levels at which the data are summarized. Guidelines are provided about how to prepare for analysis using the CTPP. The chapter contains the two case studies. A series of spreadsheet templates are provided with the case studies to show how the data can be used in various kinds of analyses. **Chapter 3** indicates the types of checks that you will want to make on CTPP tabulations as you review the data, including some considerations to make before using the CTPP for travel demand forecasting and direct analysis. The chapter also briefly introduces the Windows-based TransVU software that has been distributed by the U.S. DOT's Bureau of Transportation Statistics (BTS) and the Census Bureau to extract the information needed from the rather large CTPP tabulations contained on CD-ROM. Finally, the **Appendices** contain additional background information on the available CTPP tables and Census questionnaire.

CHAPTER 1

OVERVIEW OF THE CTPP

What is the CTPP?

The 1990 Census Transportation Planning Package (CTPP) is a collection of summary tables that have been generated from both the 1990 Census short and long forms. The tables contain information about population and household characteristics, worker characteristics and characteristics of the Journey-to-Work (JTW). The tables provided in the CTPP are similar in format and content to those available in other Census products. It should be noted that the CTPP does not contain raw Census information; rather the information provided, as with all other Census products, has been organized into a series of tables. The tables contained in the CTPP cannot be disaggregated; however, they can be combined to conduct a variety of analyses. In fact, the CTPP tables have been designed specifically for transportation planning analysis based on extensive input from transportation professionals representing various agencies from across the country. However, upon reviewing the available tables, you may note that there are numerous applications for the CTPP outside transportation planning.

Census Definitions

Before proceeding, it is important to become familiar with the terminology used in the CTPP and other Census products. The following key terms are used throughout this handbook and in conjunction with the use of Census data; those marked with an asterisk are Census-specific:

■ Census Long Form* - Sampled data collected from about one in six households (more in rural areas, less in densely developed urban areas). The long form is the source of some population and economic data, and all Journey-to-Work data. (See Appendix.)

■ Census Short Form* - Used in the 100 percent count of all persons. A source of total population, race, sex, age, and some housing data, including type of structure, units in structure and value of home or monthly rent. (See Appendix.)

■ Geographic Information - System (GIS) An organized collection of computer hardware, software and geographic data designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information.

■ Geographic Summary   -   The geographic location at which CTPP data
Level*   are tabulated (e.g., state, county, place or traffic
                            analysis zones/census tracts).

■ Group Quarters*   -   Communal housing, such as dormitories, military bases,
                            prisons and nursing homes. Group quarters are distinct
                            from *households* in the CTPP.

■ Home-Based Work   -   A travel demand forecasting term that refers to
Trip (HBW)   the two-way work trip (including journey-*to*-work and
                            journey-*from*-work).

■ Journey-to-Work   -   The one-way trip from home to work, or a commuter
(JTW)*   trip. Also called "worker flows." Collected from the
                            Census long form.

■ Nationwide Personal -   A periodic telephone survey of 20,000 households
Transportation Study   also conducted in 1990. Includes data about all trips
(NPTS)   and travel modes used in survey households.

■ Place*   -   Defined by the Census Bureau as having a population
                            of 2,500 or more. Also known as a Census-Defined
                            Place (CDP). Cities, towns and villages are all 'places.'

■ Place of Residence* -   The location at which Census respondents said they
                            lived at the time the Census was taken (April 1990).
                            Household and economic characteristics are
                            summarized by residence location. Taken from all
                            Census respondents (short form).

■ Place of Work*   -   The location at which Census respondents said they
                            worked. Worker characteristics summarized by work
                            place location. This information is taken from sampled
                            data (long form).

■ Statewide Element*   -   The CTPP is divided into two main groupings of the
                            data, based on the level at which the data are
                            geographically summarized. The Statewide Element
                            consists of data summaries for the entire state, county
                            totals for each county within the state and place totals
                            for each place within a county.

■ Summary Tape   -   Data from 1990 Census Long and Short Forms
Files (STF)*   on 9-track computer tape. Summarized by block, block
                            group and zip code. Includes Place of Residence data.

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■ TIGER* - Topologically Integrated Geographic Encoding and Referencing System. Nationwide database containing roads, water boundaries and Census geography (tracts and block groups). Used as a base in many GIS applications.

■ Traffic Analysis Zones (TAZ)* - Level of geographic detail used in most transportation planning applications to summarize socio-economic characteristics and travel data. TAZs vary in size depending on density and homogeneity of land uses, and are defined by local agencies.

■ Travel Shed - A term used to describe a relatively distinct geographic area served by a key transportation system component, such as a transit line.

■ Trip Chaining - A term used to refer to the phenomenon of making intermediate stops as part of a longer trip. For example, stopping at a convenience store or the day care center as part of the trip from home to work. Chained trips were not reported in the 1990 Census, and therefore, are not reflected in the Journey-to-Work data.

■ Universe* - The unit being measured in the CTPP tables (e.g., Workers 16 years and over). The tables often define the characteristics of the universe by other variables, such as means of transportation to work, age or income. These are called **cross-tabulations**.

■ Urban Element* - The Urban Element contains a more detailed summary of Census data for urbanized areas (50,000 population or more). Data are summarized at the Census tract or Traffic Analysis Zone (TAZ) level. Totals are also provided for the urbanized area, the Metropolitan Statistical Area (MSA) and special study areas (if defined).

Unique Features of the CTPP

Similarities exist between the CTPP and other Census products, such as STF (Summary Tape File) 3A. Notable differences also exist. First, the CTPP is the only Census product that summarizes tables by Place of Work and by Place of Residence. All other Census products provide information by Place of Residence only. Place of Work tabulations can be extremely helpful in determining where concentrations of workers are located and the characteristics of those workers, as stratified by work place location. For example, the CTPP provides information about the characteristics of people who work within a Central Business District or other major employment areas under analysis. It will also provide characteristics of the work force for towns, cities, counties and states. Because the CTPP provides the only summary of worker characteristics by Place of Work, it will be of use to those outside the transportation planning profession as well.

CTPP TABLE 2-3
WORKERS BY INDUSTRY
Number of Cells = 3*19=57

Import area(s)

Strat1	Strat2	TOTAL	TAZ 1	TAZ 2	TAZ 3	TAZ 4	TAZ 5
Total	Total	87104	41527	31145	11335	561	2536
Agriculture, Forestry, Fisheries	Total	159	21	35	103	0	0
Mining	Total	0	0	0	0	0	0
Construction	Total	4395	1852	1389	897	103	154
Manufacturing, Nondurable	Total	7928	139	5151	2602	0	36
Manufacturing, Durable	Total	9276	209	7726	1341	0	0
Transportation	Total	1981	526	1318	65	0	72
Communication, Utilities	Total	2017	430	1078	53	65	391
Wholesale Trade	Total	2995	962	1659	209	21	144
Retail Trade	Total	8703	6374	1987	34	233	75
Finance, Insurance, Real Estate	Total	9478	9034	364	0	36	44
Business and Repair Service	Total	2738	1267	321	1122	18	10

Exhibit 1-1

Exhibit 1-1 shows how Place of Work data may be summarized. In the example, a study area consisting of five TAZs has been created to identify the characteristics of workers who commute *to* the study area. The CTPP table used here reports the total number of workers in each industry for each of the five TAZs. Understanding the number of workers by industry could help to assess the need for commuter bus service to the area, for example, especially if bus ridership in the area is connected to certain industry segments of the workforce. Other CTPP tables can also be used to examine time of arrival at work and travel time by mode to the five TAZs in the example, and so that further analysis can be conducted.

The CTPP is the only source of JTW information available from the Census Bureau. Detailed information about the commute trip from home to work is provided, allowing the user to obtain such information as the **origin and destination** of each commuting trip, the **travel time** of the trip, the **travel mode** used for the trip and **when the trip began or ended**. This information will be helpful in both travel demand modeling and in assessing the effectiveness of transportation programs designed primarily for commuters. Another distinction of the CTPP from data sources is the summary of information by TAZ. Most Metropolitan Planning Organizations (MPOs) developed Census geography and TAZ equivalencies which were used by the Census Bureau to summarize tables by TAZ as opposed to Census block groups or Census tracts. This will enable those MPOs directly to introduce CTPP information into their land use data files (as used in travel demand forecasting models); most MPOs have indicated that this will be their primary use of the CTPP. However, as will be indicated throughout this handbook, the CTPP has a number of other applications that are of benefit to CTPP users.

Exhibit 1-2 presents a summary of the types of tabulations available in the CTPP. The Place of Residence tabulations report the characteristics of persons, households, and workers by where they live. The Place of Work data summarize information about workers (such as industry, sex, time of arrival at work, etc.) by where they work. The Journey to Work (JTW) data provide travel characteristics about the trip from home to work, including persons per vehicle, travel time in minutes and travel mode used.

AVAILABLE CTPP TABULATIONS

Place of Residence

Place of Work

Household Characteristics

Person/ Worker Characteristics

Journey-To-Work Characteristics

Worker Characteristics

Exhibit 1-2

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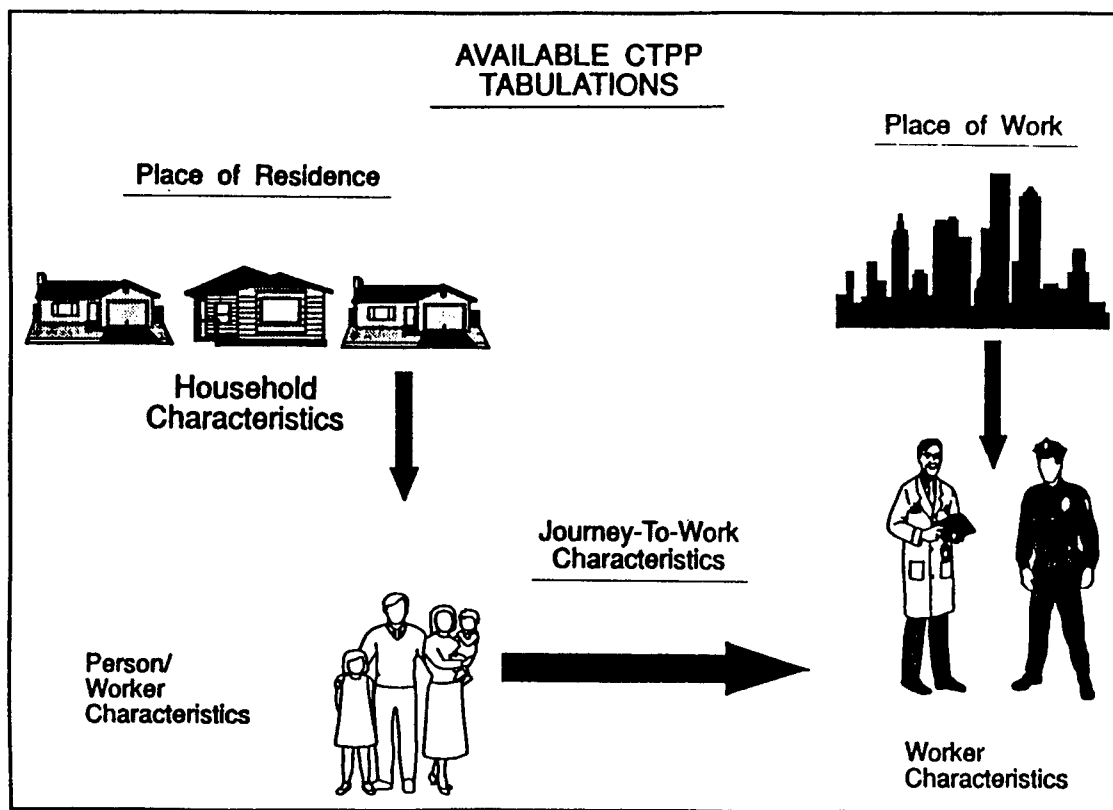
CHAPTER 2

ORGANIZATION OF THE CTPP

Introduction

The CTPP tables are organized into a series of parts contained within two elements. The *elements* define the geographic summary level. The *parts* define whether the tables are summarizing information by Place of Residence, Place of Work or Journey-to-Work. This chapter describes what is included in each of the two elements, and in the several parts contained within these elements.

CTPP Elements

As noted above, the CTPP is divided into two elements: the Statewide Element and the Urban Element. The *Statewide Element* provides data summaries for all places of 2,500 or more population, the balance of the county (non-incorporated county totals), the county as a whole, and the entirety of the state. Note that "places" are incorporated municipalities or Census-defined places (a listing of all incorporated or Census-defined places is available from the Census Bureau). The 1990 CTPP represents the first time that a Statewide Element has been created, allowing planners to analyze travel across a wide geographic range. In previous years, only an urbanized area package was created. This traditional urbanized area package is what constitutes the *Urban Element* in the 1990 CTPP. The Urban Element provides data summaries for urbanized areas with a population of 50,000 or more, and provides information at the Census tract or the TAZ level.

The Statewide Element is used to identify travel characteristics for cities with different sizes and economies. For example, the Statewide Element makes it relatively easy to identify the mode share for transit work trips as a percentage of total JTW travel within a city because travel characteristics information is reported as a total for the place, the county or the state. The Statewide Element could also be used to identify work trip rates per household for each place. The Urban Element, on the other hand, would be most appropriate when looking at the travel mode share within a corridor that connects an outlying suburb with a major employment center. This is because data contained in the Urban Element are summarized at a finer level of detail (e.g., TAZs).

Statewide Element

Exhibit 2-1 illustrates the summaries that are available in the Statewide Element (i.e., Place of Residence, Place of Work and Journey-to-Work). The exhibit shows that totals are provided by Place (e.g., a city or township) and for the balance of the county, each county overall, and for the state as a whole. The arrows show the JTW flows reported in the Statewide Element. The CTPP provides information on worker travel flows

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from (i) Place A to Place B, (ii) County 1 to Place B, (iii) County 1 to County 2, and (iv) Place A to County 2.

STATEWIDE GEOGRAPHIC SUMMARY LEVELS
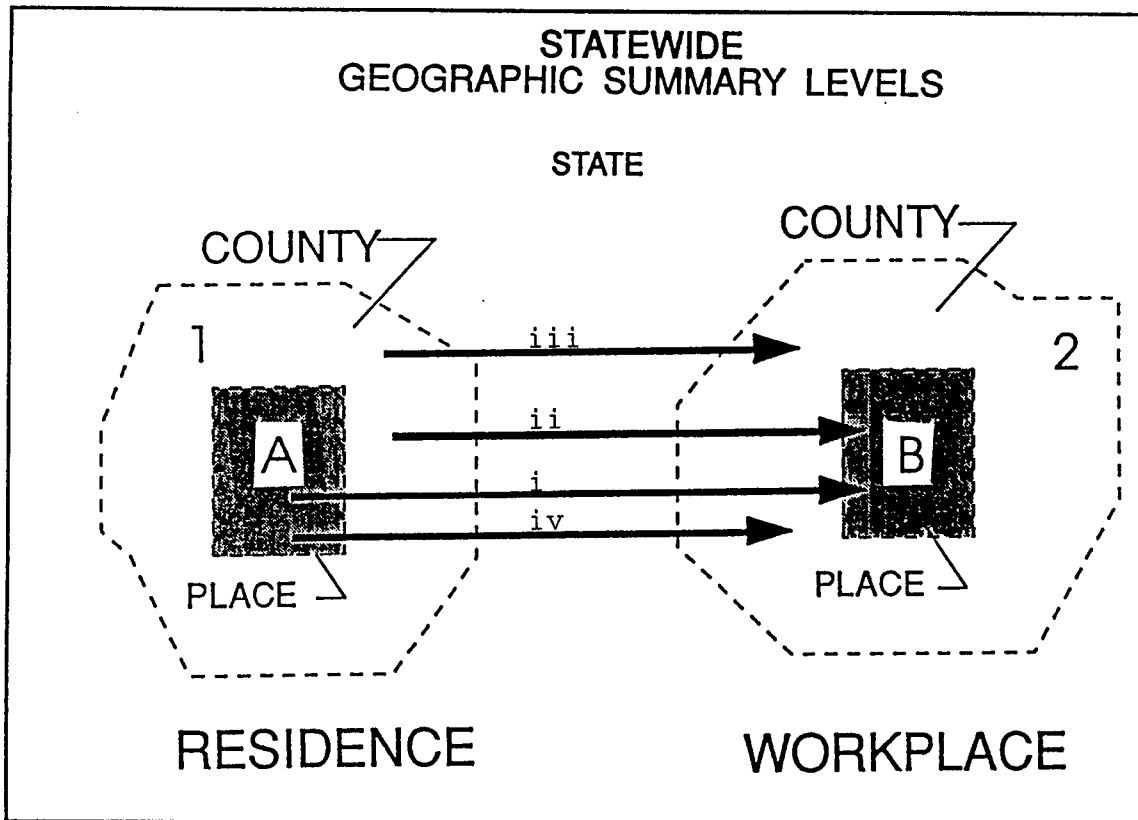
STATE

Exhibit 2-1

Of interest in the Statewide Element are the types of JTW tabulations available for all places greater than 2,500 population and all counties within the state. In most states, there are quite a few places of 2,500 or more population. Depending on the number of places and counties within the state, the Statewide Element can provide a high degree of detail for JTW flow characteristics. Even within an urban area, the Statewide Element can provide detailed information about JTW flows for suburb-to-suburb travel and from outlying cities into a major city. The Statewide Element can also be used as a resource to identify population, housing, workplace and JTW **control totals** within an urban area.

Urban Element

The Urban Element provides summaries for Traffic Analysis Zones (or census tracts, for those MPOs that chose not to provide Census geography/TAZ equivalencies), subtotals for the urbanized area defined by the Census Bureau, study area (as defined by the MPO) and for the entire metropolitan statistical area, as defined by the Census Bureau.

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Exhibit 2-2 illustrates the types of summaries that are available in the Urban Element of the CTPP. In the exhibit, the urban area crosses a state boundary. The Urban Element of the CTPP addresses this situation by providing detailed JTW characteristics for the entire metropolitan area, despite state lines. In a manner similar to the Statewide Element, residence and workplace summaries are available for individual TAZs, as well as for the urbanized area defined by the Census Bureau, and a total for the entire MSA.
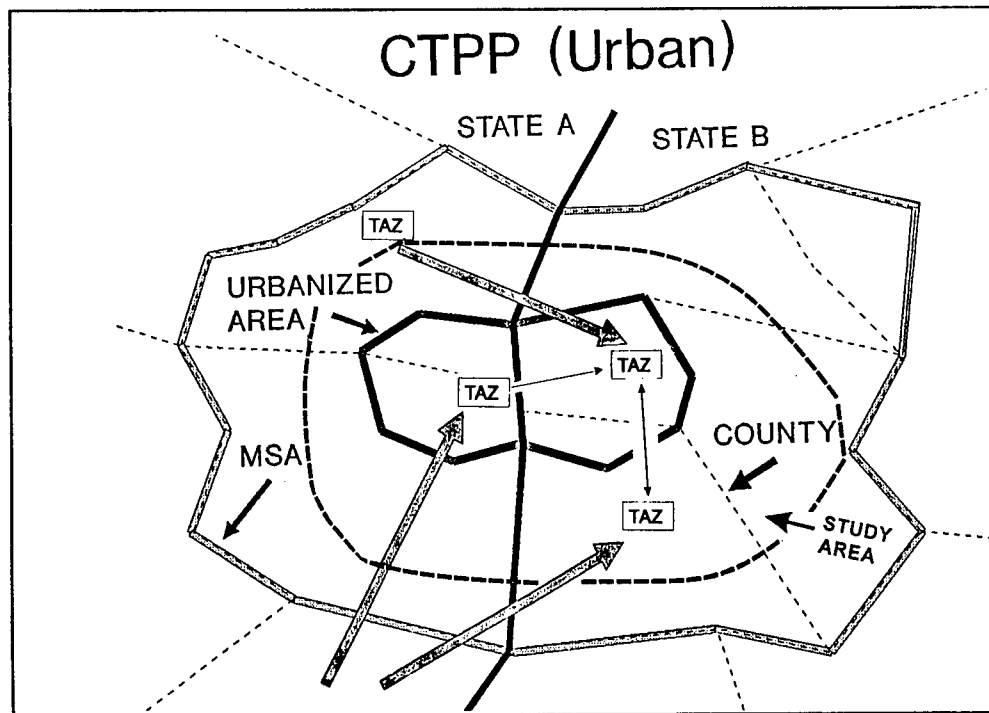
Exhibit 2-2

JTW flow information will be available among all defined TAZs within the MSA and between internal TAZs and external counties and places. It should be emphasized that travel flows are available within the MSA among all defined TAZs, despite the state or county in which each TAZ is located.

CTPP Parts

Each element of the CTPP is divided into several parts. The Statewide Element is divided into Parts A-F, and the Urban Element is divided into Parts 1-8 (note that the Census Bureau did not use "Part 5" in its numbering scheme for the Urban Element). Each part contains a collection of tables that define the population or households by Place of Residence, Place of Work or by the characteristics of the JTW. For example, **Part A of the Statewide Element** contains tables that describe **population and household** characteristics by Place of Residence. Turn now to Appendix A, which contains a listing

of the CTPP tables in Parts A, B, and C of the Statewide Element. In Appendix A, the outline for **Table A-1** identifies population within a place or county. Similarly, the outline for **Table A-4** identifies household data for a place, county, or state.

Part B in the Statewide Element contains tables that define **workers** by Place of Work. This part would be helpful to identify the characteristics of workers within each place or county. Note that in Part B, some of those workers may actually have their residence in another city or county. When reviewing each part, you will notice that there are tables provided in Part A of the Statewide Element that describe worker characteristics. These tables differ from those available in Part B, in that Part A describes the workers by where they **live** and Part B describes the workers by where they **work**.

Part C of the Statewide Element contains tables that describe the characteristics of the **Journey-to-Work**. For example, the outline for **Table C-1** in Appendix A, which identifies the means of transportation to work, shows how Part C can be used to identify the total number of work trips made by travel mode for each Census-defined place within a particular state.

Turn again to Appendix A and note that **Parts 1, 2 and 3 of the Urban Element** contain the same table variables that are provided in Parts A, B and C of the Statewide Element. The difference between the parts of the two elements is the geographic level of detail at which the data are summarized. The Statewide Element includes summaries by place, balance of county, county and state; Parts 1, 2 and 3 of the Urban Element provide table summaries by TAZ or census tract, urbanized area, study area and MSA.

The remaining parts in the Statewide and Urban Elements are **specialized tabulations** created to provide greater detail for household, place of work and worker flow information. These specialized parts are only available for very large areas to avoid problems caused by confidentiality concerns and large table sizes. For the Statewide Element, specialized tabulations are available only for places and counties with 75,000 or more population. Within the Urban Element, specialized tabulations are available within super districts of 100,000 or more population. The exception in the Urban Element is Part 7, which is a Place of Work summary available by Census Tract. This part is intended primarily for non-transportation users who would like to get Census information by typical Census geography.

CTPP Tables

As noted in the Introduction, the CTPP is a collection of summary tables that cannot be disaggregated. The table structure has been defined by transportation practitioners on the Transportation Research Board's Committee on Data Collection and Information Systems, the Federal Transit Administration, the Federal Highway Administration and the Census Bureau. Two prominent issues defining the selected table designs were

confidentiality and size. The Census Bureau has strict requirements regarding confidentiality that can be violated by either presenting information at a very detailed geographic level, (e.g., blocks) or by providing too much detail about population or household characteristics at larger geographic areas. Furthermore, when three or more cross-tabulations of data are combined, tables become quite large and difficult to manage. Therefore, tables for smaller geographic summary levels such as TAZs include limited amounts of household or population characteristics detail. Several tables can be combined to obtain a complete picture of the geographic area's characteristics, however. The tables for the specialized parts, as mentioned above, were developed to help address this issue.

Most of the information for the CTPP is developed from questions on the Census long form. The long form was completed by about **one in six households** in the country, with a sampling rate that varied by the type of area. Rural areas had up to a one in two sampling rate, while some urban areas had as low as a one in 20 sampling rate. A lower sampling rate is needed in urban areas because of the likelihood of homogeneous socio-economic and travel characteristics in dense communities.

EXAMPLE TABULATION

CTPP Table A-6 or (1-6), Persons by Sex and Age

Cross Tabulation #2 Age (Census Question #5a)	Geographic Summary Level Counties (TAZs) Total	Cross Tabulation #1 Sex (Census Question #3) Male	Female
Total	xx	xx	xx
Under 16	xx	xx	xx
16, 17	xx	xx	xx
18-20	xx	Universe -	
21-24	xx		
25-34	xx	Persons	
35-44	xx	xx	xx
45-54	xx	xx	xx
55-61	xx	xx	xx
62-64	xx	xx	xx
65-75	xx	xx	xx
75+	xx	xx	xx

Number of Cells = 3 Sex Categories * 12 Age Categories = 36

Note: Age has been classified into categories

Exhibit 2-3

All of the tables provided in the CTPP have the same general structure. As illustrated in **Exhibit 2-3**, each CTPP table is defined by a universe and one or more cross-tabulation variables. In the example, the number of persons is the **universe** and age and sex are the **cross-tabulation** variables used to define persons. All CTPP tables provide universe totals (in this example, it would be total persons) as well as totals for each of the cross-classification categories used (for example, total males or total females).

The tables then define the population by each of the cross-tabulation categories. In this particular example, if the analyst needed to find out the total number of males between the ages of 21 and 24, it is provided within the table.

Another dimension to all of the tables is the geographic summary level. In Exhibit 2-3, the summary level could be TAZs or counties, depending on whether you are in the Urban Element (Table 1-6) or the Statewide Element (Table A-6). A table that describes the population by sex and age will be available within the CTPP's Urban Element for every TAZ within the urban area. Similarly, for all places and counties, a separate CTPP table is provided in the Statewide Element that defines persons by these same characteristics of sex and age. Finally, the example shows the source of the information. In this example, Question No. 3 on the Census short form provides information about gender. Age categories are developed from responses to Question 5A on the Census short form. To make the connection between CTPP tabulations and the questionnaire used to collect the information, both the Census short and long forms are provided in the Appendix of this handbook.

EXAMPLE TABULATION

Table C-1 (3-1) Time Leaving Home to Work - Total and Peak Period by Means of Transportation to Work

Cross-Tabulation #2
Means of Transportation
(Question 23a)

Cross-Tabulation #1
Total/Peak Period
(Question 24a)

Universe -

Workers Who Did Not Work at Home

NOTE: Total/Peak derived and classified from time of departure data
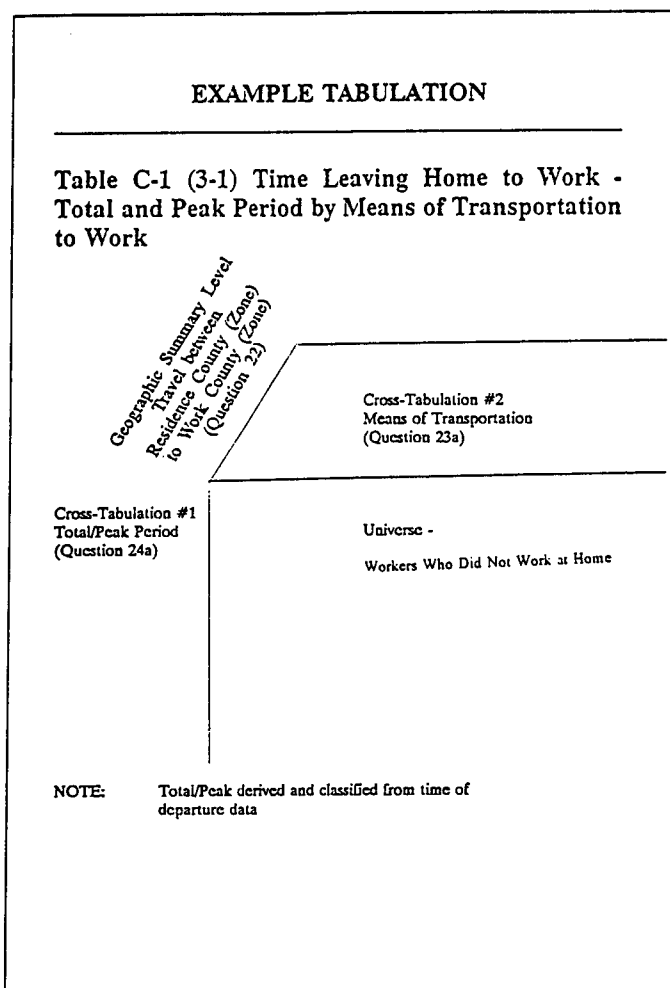
Exhibit 2-4

Exhibit 2-4 provides another example of a CTPP tabulation. For this example, the universe is workers who did not work at home (the Census counts workers only 16 years of age or older), with the cross-tabulation variables being means of transportation (travel mode) and the time leaving home to go to work (by total and peak period). This table will provide the total number of workers, as well as how many traveled by various means of transportation, including single-occupant automobiles, carpools and transit. The table will provide the information for the total day and for the Census defined AM peak period (6:30 a.m. to 8:29 a.m.)

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Because this particular table reports JTW information, the geographic summary levels, or the third dimension, will differ from either the Place of Residence or the Place of Work summary levels. For example, instead of having one table available for each TAZ within an urban area of 500 TAZs, or 500 tables, a JTW summary table will be provided for every TAZ pair in which commuting trips were made. Thus, there could be 500 destinations for trips that begin in TAZ #1. If there are trips made among all TAZ pairs, there would be a total of 250,000 tables (or 500 squared) available within the CTPP JTW tabulations. This information will reflect trip tables generated by travel demand models. As noted in Chapter 3, a comparison of CTPP and travel demand model estimated trip tables is one of the more important checks to be made during model validation.

As stated previously, a complete listing of the CTPP tables contained in Parts A, B and C and Parts 1, 2 and 3 is provided in the Appendix. It is recommended that you take time to review these tables and how they have been organized with respect to the variables that define the unit of measure (such as workers or households). When reviewing them, note that in nearly all instances the table descriptions begin with the table's **universe**, followed by the **cross-tabulation variables** used to describe the universe. The number of cells in the table appears to the right of the descriptions, and is based on the number of categories in each cross-tabulation. For example, Table C-1, Workers by Time Leaving Home to Go to Work and Means of Transportation, has a total of 38 cells. As previously illustrated in Exhibit 2-4, there are two categories for time leaving home and 19 categories for travel mode that, when combined, total the 38 table cells. The table descriptions also define the summary levels provided in each of the Parts. As shown on page A-24 of the Appendix, there is a total of 2,481 table cells within Part A of the Statewide Element.

Summary

The CTPP has been organized into a **Statewide** and **Urban Element**, with the Statewide Element providing totals for **places**, the **balance of counties** and **totals for counties and the state** as a whole. The Urban Element provides totals for individual **TAZs** or **census tracts**, the **Census-defined urbanized area**, the **MPO-defined study area** and the **MSA** in which the MPO is located. Each element is divided into **parts**, with the primary distinction among the parts being how the data are tabulated, such as by **Place of Residence, Place of Work or JTW**. The Statewide Element includes **Parts A through F**, and the Urban Element includes **Parts 1 through 8** (Part 5, however, does not exist). Parts A, B and C in the Statewide Element and 1, 2 and 3 in the Urban Element contain the same tables, yet with summaries provided at different geographic levels. It is believed these parts will be the most useful to CTPP users. The remaining parts in either element are **specialized tabulations** that were necessary because of **size** and **confidentiality considerations**. For the Statewide Element, specialized tabulations are available only for places and counties with 75,000 or more population. And within the Urban Element, specialized tabulations are available within super districts of 100,000 or more population. The exception in the Urban Element is Part 7, which is a Place of Work

summary available by Census Tract. This part is intended primarily for non-transportation users who would like to get Census information by typical Census geography.

Detailed specifications for the CTPP parts and tables by Element are provided in Appendix A. Each table is defined by its **universe** (the unit of measurement) and one or more **cross-tabulation variables**. Each of the cross-tabulation variables is defined by discreet categories. Both the Census short form and long form are provided in Appendix B. Most of the information for the CTPP is developed from questions on the Census long form. The long form was completed by about **one in six households** in the country, with a sampling rate that varied by the type of area. Rural areas had up to a one in two sampling rate, whereas urban areas had as low as a one in 20 sampling rate due to the varying likelihood of homogeneity among socio-economic and travel characteristics in different communities.

Preparing for Analysis Using the CTPP

Now that you have been introduced to the CTPP's unique features and how the information is organized, there are several key steps to follow before analysis can take place. You may want to think of these steps as a series of questions that must be answered to know which tables should be used and how the data contained in the tables can be applied. The following questions, once answered, will guide your use of the CTPP:

- What is it that I am trying to measure?

- What is the geographic area that I want to study?

- What do I want to know about the item(s) I am trying to measure?

- What kinds of analysis or manipulations of the data might be needed?

- How has the unit of measure or geographic area changed since 1990?

There may be other questions that you can think of, but answering these questions will get you started on the right path. Turn now to the table summaries shown in the Appendix of this handbook. Pay particular attention to the unit of measure in each table and the ways in which the data contained in each table are cross-tabulated. You will need to become familiar with the available tables before beginning any analysis using CTPP data.

The first thing you need to know is what the unit of measure will be, which is referred to in Census terms as the *Universe*. For example, if you want to know an area's population, you need to determine if you want to count households or people. If you want to identify trip rates per household, you need to decide if you want to count workers per household or persons per household. Related to this question, you will need to ask yourself if you want the characteristics of workers by where they live, or by where they work. Your answer will determine which CTPP *Part* to access.

The second question involves the geographic area of analysis. If you want to summarize travel characteristics at employment centers, you have to determine whether you want this information for a city or county, or for the Central Business District within a city. Depending on how you answer this question, you will use either the *Statewide or Urban Element* of the CTPP.

Once you have identified the unit of measure, or universe, you need to think about what you want to know about it. Let's say you are trying to identify the mode of travel used for work trips within a major travel corridor. Workers may be the unit of measure, but there are *cross-tabulations* of workers by means of transportation and time leaving home. The results of your analysis will depend on whether you use peak period numbers or total numbers for the time workers leave home to go to work. Similarly, households or persons

are cross-tabulated by a variety of characteristics, including age, sex, employment status, vehicles available, income, etc. Which of these cross-tabs will be helpful to you as you conduct the analysis?

If you decide to conduct an analysis using the CTPP Urban Element, which contains data summaries by census tract or traffic analysis zone, it may be necessary to combine or aggregate areas. In the above corridor analysis example, you will likely have to identify the TAZs in which the employment center is contained, then group them accordingly to summarize the characteristics of workers by their place of work. If you analyze those workers by where they live, then you will need to aggregate place of residence TAZs to perform the analysis.

Other manipulations of the data may be needed, depending on the analysis. Remember that you won't be able to disaggregate CTPP tables, but you can combine them. You can also combine data cross-tabulations, such as age categories, or means of transportation. For example, you may be interested in defining the means of transportation to work for females, ages 16 to 24. You could combine several age categories to conduct this analysis. Also, If you are trying to analyze travel other than the trip from home to work, then you may have to convert the CTPP data (as described briefly in Chapter 3) or use other data sources to enhance the information contained in the CTPP.

Finally, you need to ask yourself if there have been any major physical changes in the area or changes in travel modes since 1990. If a new beltway has been completed, a light rail transit line developed or if a major employer has relocated, the 1990 CTPP will not reflect potential travel and place of work changes. Therefore, you will need to do some preliminary research about the study area before using the CTPP and making quick assumptions from the data. You might consider checking other sources of information to determine if there are reasons that the CTPP data might need to be adjusted, and if so, in what manner. If the study area has remained reasonably constant, then the CTPP can be an excellent source of baseline data for residence, workplace and journey-to-work characteristics.

On the following page, questions are posed to reinforce the steps necessary to prepare for analysis with the CTPP. The example problem of developing a transit plan is used. Answer the questions as best as you can, and then compare your answers with those given on page 20.

Preparing for Analysis Using the CTPP

Questions to be answered:

1. To help develop a transit plan for the urbanized area, your staff director has asked you to summarize the age and economic characteristics of those who are employed in areas not served by public transit. What would you choose as the primary unit of measure, or universe, in the CTPP?

2. What other information would you need to assemble before using the CTPP to assist you in this analysis?

3. What CTPP Element would you use to provide the information to the staff director?

4. What Part would contain information about employees by where they live? In what Part would you find employee characteristics by where they work?

5. What other cross-tabulations might be helpful in this analysis of workers?

6. Now turning to the Appendix, which tables would be most appropriate for this analysis?

Answers appear on the following page.

Preparing for Analysis Using the CTPP

Answers:

1.   Workers Age 16 Years and Over

2.   Transit system map and route maps to identify areas not served by public transit; a map of traffic analysis zones or census tracts to identify the geographic units of analysis; land use maps or aerial photos to provide detail about land use types and locations within the geographic area.

3.   The Urban Element provides the data for this analysis at the TAZ or census tract level. The Statewide Element, with summaries at the place or county level, would not be able to provide enough detailed information on employee workplace locations.

4.   Part 1 - Place of Residence in the Urban Element. Part 2 provides Place of Work information.

5.   Vehicles Available; Household Income; Mobility Limitation Status; Time of Arrival at Work; Number of Workers in Households; etc.

6.   Select tables for the analysis could include **Table 1-10**, Mobility Limitation Status by Employment Status; **Table 1-18**, Number of Workers in Household by Vehicles Available; **Table 1-44**, Mobility Limitation Status by Means of Transportation to Work; **Table 2-10**, Earnings of Workers by Means of Transportation (Place of Work, Urban Element); **Table 2-17**, Vehicles Available by Means of Transportation to Work by Workers in Household; **Table 2-18**, Time of Arrival at Work by Means of Transportation.

CASE STUDIES

INTRODUCTION

The two following case studies are taken from case studies used as part of the FHWA-sponsored Census Transportation Planning Package Applications Workshops (NHI Course No. 15131). They are intended to demonstrate "hands on" application of the CTPP data contained in tables from the Statewide and Urban Elements. The case studies use a series of Lotus spreadsheet templates to illustrate CTPP applications. A diskette is provided that includes all the templates needed for the case studies, plus additional case studies used in the three day workshop.

The templates contain macro commands that automate the steps in the case studies. As you begin working on the case studies, it is important that you follow the instructions appearing in the upper right-hand corner of the screen. Those instructions guide you through the necessary steps, in sequential order. You may exit from the macro commands by typing **"Q"** or highlighting Quit from the case study menu that appears in the upper left-hand side of the screen. This will allow you to review the spreadsheet templates and calculation formulas. To get back into the macro commands after quitting, press the **"Alt" and "C"** keys simultaneously. If you get off track from the macro commands, you should exit from the program and re-start the case study. It is relatively easy to retrace your steps. Again, it is very important that, at least initially, you follow the command prompts that appear in the upper right-hand side of the screen.

Although these spreadsheet templates were developed in an earlier version of Lotus 1-2-3, they should be able to work with current Windows-based spreadsheet programs, such as Lotus, Quattro and Excel. If the macro commands do not work in other software programs, you will need to use Lotus 1-2-3 version 2.2 to run the case study templates. **You should create a CTPP directory on your computer's hard drive and copy the files from the diskette to it.** The use of the Lotus environment for these templates does not constitute an endorsement of the software on the part of FHWA or other sponsoring agencies. You may work on the additional case studies, but the steps and answers are not provided in this handbook.

A series of questions follow each step in the case study. The questions are designed to make you think about how the data could be applied. The questions may not always have a right or wrong answer; in several cases, you must use your experience and intuition to determine an appropriate response. Suggested answers are provided at the end of the case studies.

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

OBJECTIVE: This Case Study provides an understanding of how the **Statewide Element** of the CTPP can help define or check parameters used for travel demand modeling. It is Case Study No. 5 on the diskette provided.

MATERIALS PROVIDED:

> <u>Lotus Template Files</u>
> - CS-5-1A.WK1
> - CS-5-1B.WK1
> - CS-5-1C.WK1
> - CS-5-1D.WK1

OVERVIEW OF CASE STUDY STEPS:

Exhibit CS-A-1 provides a visual case study overview, and on page 25, a narrative introduction is given. You are also asked on that page to prepare for analysis and the case study steps by answering a few questions. On page 26, the steps begin, starting with Step 1 and setting up the problem. Answer the questions for Step 1, then turn the page to answer questions for Step 2, and so on until all questions are answered. Steps 2 through 6 require the use of the spreadsheets listed above. To use the spreadsheets, either select Case Study 5 (as it is named on the diskette) from the Case Study Menu (CS-MENU.WK1) or retrieve file CS-5-1A.WK1 into a blank spreadsheet. Menus and prompts are provided for assistance. You must complete each and every step sequentially. If you miss a step in the spreadsheets, return to the Case Study Main Menu and start over. It is relatively easy to retrace your steps.

NOTE: This Case Study uses a conversion factor of 1.81 to convert Census JTW data into Home-based Work (HBW) trips for use in travel demand forecasting models. The details of developing this conversion factor are covered in the CTPP training course (and are included in case study 3 on the diskette provided with this handbook). The conversion factor is close to 2.0 because the JTW trips must be doubled to account for the trip from work to home. However, because of trip chaining, mode shift and other locally-derived factors, it is not accurate simply to double the JTW trips reported in the CTPP. FHWA is in the process of identifying conversion factors for different sized urban areas. Contact CTPP Telephone Assistance or call FHWA to obtain further information about this effort; telephone numbers are included in Chapter 3.

CASE STUDY OVERVIEW
Travel Demand Characteristics by Urban Area Size

```
                    ┌─────────────────────┐
                    │      Step 1         │
                    │ Identify and Classify│
                    │  State's Urban Areas │
                    └─────────────────────┘
```

| Step 2 Calculate Trip Rates By Urban Area | Step 3 Determine Vehicle Occupancies and Mode Splits By Urban Area | Step 4 Determine The Percentage of Daily JTW Trips Occurring In The Peak Period By Urban Area | Step 5 Determine Daily/ Peak Trip Lengths By Urban Area |

```
            ┌──────────────────────────────────────┐
            │              Step 6                  │
            │ Graph and Summarize Relationships    │
            │ Between Travel Characteristics and   │
            │ Urban Area Size (Population)         │
            └──────────────────────────────────────┘
```

Exhibit CS-A-1

24
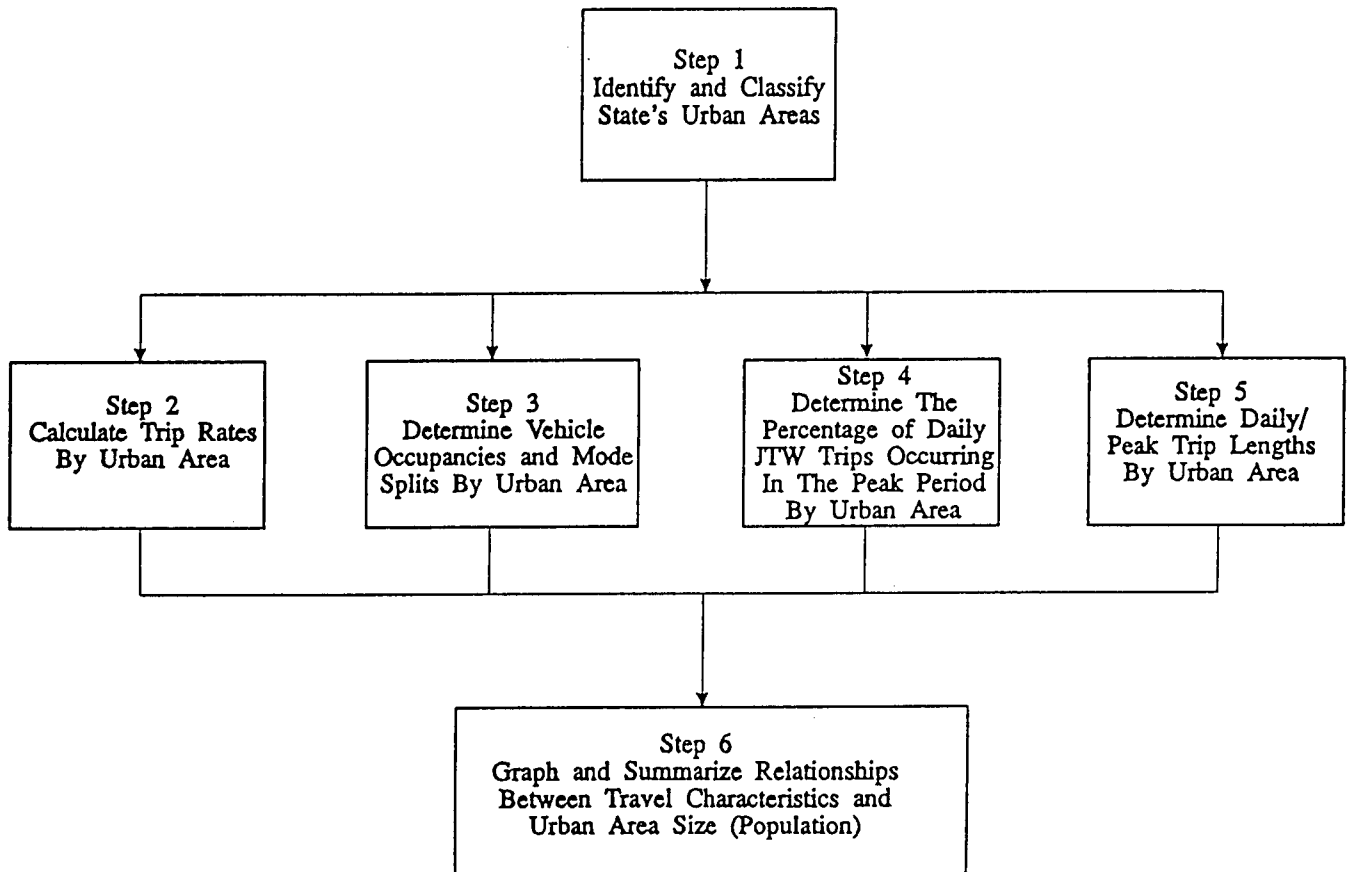
CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

INTRODUCTION

Urban areas in the State of States **(Exhibit CS-A-2)** have been growing rapidly. The Department of Transportation has recognized that as cities grow, travel characteristics change. To make sure that traffic forecasts take into account changing travel characteristics, the DOT is attempting to develop reasonable relationships between urban area size (defined by population) and key travel parameters (trip rates, trip lengths, vehicle occupancies, etc.). These relationships will help check the reasonableness of traffic forecasts made for each of the state's urban areas.
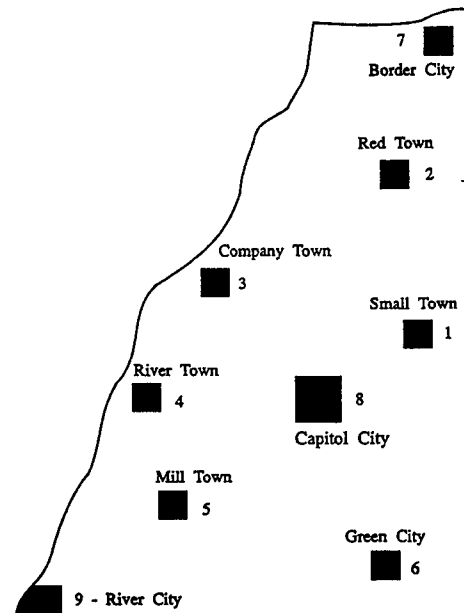
Exhibit CS-A-2

PREPARING FOR ANALYSIS:

In order to use the CTPP in this exercise, you will need to think about how the analysis will be conducted. Remember the questions presented earlier in this handbook that should serve as guidelines for analysis using the CTPP.

1. Based on the case study introduction, what would be the likely unit(s) of measure needed in this analysis?

2. What is the geographic area of analysis needed?

3. What do you want to find out about the urban areas in the State of States?

4. Refer to the Appendix. Given your answers to questions 1-3 above, in what CTPP tables could you find the data needed for this analysis?

5. Are manipulations of the CTPP data necessary? Why or why not?

The following steps are used:

Remember when working in the spreadsheets, the following commands may be helpful:

    Exit Macros: Type "Q" or "Quit"
    Rejoin Macros: Type ALT and C simultaneously

Step 1:   Identify populations in the State of States' urban areas

    1.1   Identify the total urban area population here (using CTPP Table A-1) for each city in the State of States. (This has been done and is stored in the case study worksheets.)

Step 2:   Determine work trips rates by urban areas

    2.1   Download CTPP Table A-4 to determine total households for each urban area. Then, download CTPP Table C-1 to determine total work trips by urban area. (This has been done and results are stored in file HH-JTW.PRN)

    2.2   Convert JTW trips to HBW trips. Enter 1.81 (the conversion factor developed based on local data to convert CTPP Journey-to-Work data-see *Note* on pg. 23). The program will automatically multiply the factor by the JTW trips to estimate daily HBW trips.

    2.3   Divide HBW trips by households. The program will automatically divide total HBW trips by households for each urban area to determine average trip rates.

At the Completion of These Steps, the Screen Should Look Like This:

```
A1: [W6]                                                                    MENU
Step 2.1  Step 2.2  Step 2.3  Review  Step 3  Quit  CS Menu
Import HHs and J-T-W trips
        A       B       C       D         E       F        G        H
1                              TRIP RATES BY URBAN AREA SIZE
2
3
4                                       Total   JTW to    HBW      HBW
5                                        JTW     HBW      Person   Trips/
6      City  Population    Households   Trips   Factor    Trips     HH
7     ------------------- -------------------------------------------------
8       1      50,000        21,739     32,428   1.81     58,695    2.70
9       2      65,000        29,545     43,787   1.81     79,254    2.68
10      3     150,000        68,182     98,318   1.81    177,956    2.61
11      4     225,000       107,143    149,171   1.81    270,000    2.52
12      5     275,000       125,000    170,235   1.81    308,125    2.47
13      6     550,000       261,905    322,317   1.81    583,394    2.23
14      7     675,000       337,500    412,086   1.81    745,876    2.21
15      8     850,000       472,222    538,098   1.81    973,957    2.06
16      9     950,000       558,824    611,310   1.81  1,106,471    1.98
17
18
19
20
                                        CMD
```

---

1. Identify and Classify State's Urban Areas

1.1 Identify Urban Area Population

1.2 Classify Urban Areas
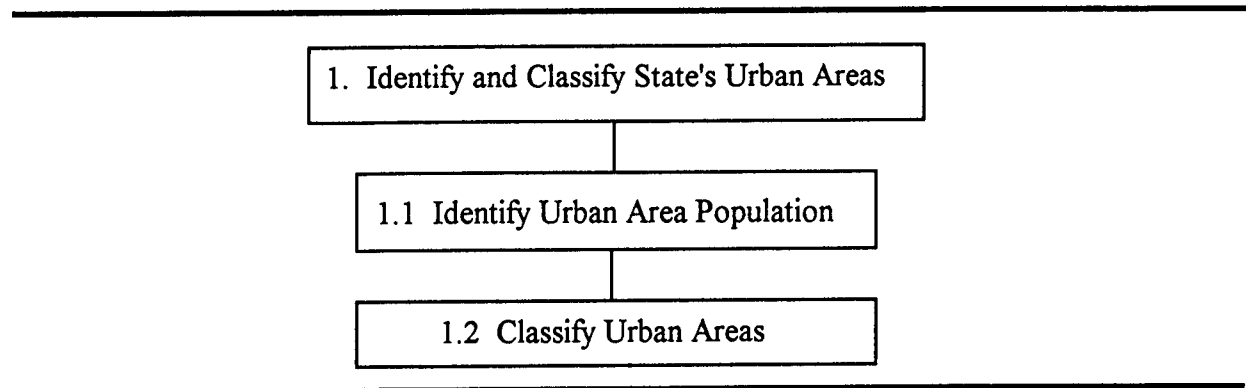
Questions to be answered:

Step 1.1 1. What other CTPP Tables could you use to find each urban area's population? Remember: (1) What information (universe) are we trying to measure; (2) At what geographic level; and (3) What other variables or characteristics of the universe are needed, if any?

2. As the population of an urban area increases, how would you expect the following travel characteristics to change, if at all?

- work trip rates per household
- work trips lengths (daily/peak period)
- work trip vehicle occupancies
- the percentage of work trips made by transit
- the percentage of peak period trips

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>
            TRIP RATES BY URBAN AREA SIZE

```
                    ┌─────────────────────────────────────┐
                    │  2.  Calculate Trip Rates by Urban Area │
                    └─────────────────────────────────────┘
                                       │
    ┌─────────────┐     ┌─────────────────────────────────────┐
    │ CTPP Table(s)├─────┤  2.1  Download HHs and JTW Trips     │
    └─────────────┘     └─────────────────────────────────────┘
                                       │
    ┌─────────────┐     ┌─────────────────────────────────────┐
    │ Conversion  ├─────┤  2.2  Convert JTW to HBW Trips       │
    │ Factors     │     └─────────────────────────────────────┘
    └─────────────┘                    │
                        ┌─────────────────────────────────────┐
                        │  2.3  Divide HBW Trips by Population │
                        └─────────────────────────────────────┘
                                       │
    ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐   ┌──────────────┐
    │   6.  Determine Relationship Between  ├───┤Trip Generation│
    │      Urban Area Size and Trip Rates   │   │    Models     │
    └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘   └──────────────┘
```
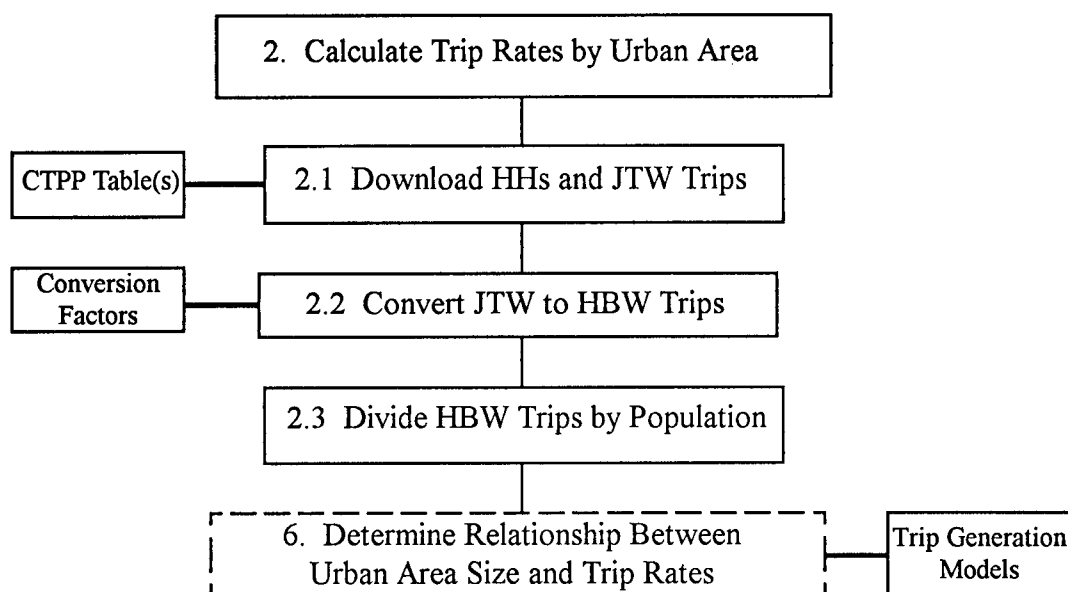
Questions to be answered:

Step 2.1   1.   How are total households (HHs) cross-tabulated in the CTPP? What are the cross-tabulations in the table that contains Journey-to-Work (JTW) trips?

         2.   After completing Step 2.1 in the spreadsheet, how many JTW trips are generated in River City?

Step 2.2   3.   Use the factor of 1.81 to convert JTW to HBW trips. Do you think this factor will vary by urban area size and, if so, how?

         4.   After completing Step 2.2, how many HBW trips are generated per day in River City?

Step 2.3   5.   What city has the highest trip rate? the lowest?

         6.   The case study calculates an overall trip rate for each urban area. Would you expect a variation of trip rates by HH characteristics? If so, what characteristics influence trip rates and what CTPP tables would you use to identify trip rates by HH type by urban area size?

29

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

Step 3   Determine Vehicle Occupancies and Mode Splits by Urban Area

    3.1   Download CTPP Table C-3, Vehicle Occupancies (this has been done and is stored in file VEH-OCC.PRN)

    3.2   Download CTPP Table C-1, Workers by Time Leaving Home to Go to Work and Means of Transportation (this has been done and is stored in file JTW-MODE.PRN)

    3.3   Calculate mode split (non-vehicle work trips) using the following formula:

    Mode Split = Non-Vehicle Trips/Total Trips

    The spreadsheet formula automatically entered in cell E8 is:
    +G8/F8

NOTE: *Non-vehicle work trips refers to all modes other than personal automobile (the Census questionnaire asks how many vehicles are available in the household).*

The Screen Should Look Like This:

```
E8: (P1) +G8/F8                                     Press Enter to return to menu


         A        B       C       D        E          F          G
    1  VEHICLE OCCUPANCIES AND MODE SPLIT BY URBAN AREA
    2
    3                                                          Non-
    4                                    JTW        Total    Vehicle
    5                          Vehicle   Mode        JTW       JTW
    6    City  Population    Occupancy   Split      Trips     Trips
    7  -------------------   --------------------------------------------
    8     1      50,000        1.25      0.1%       28,465       28
    9     2      65,000        1.36      0.1%       39,502       40
   10     3     150,000        1.30      0.1%       97,941       98
   11     4     225,000        1.27      0.1%      165,746      166
   12     5     275,000        1.31      0.3%      194,751      584
   13     6     550,000        1.29      0.8%      373,323    2,987
   14     7     675,000        1.27      0.9%      466,160    4,195
   15     8     850,000        1.26      1.9%      547,882   10,410
   16     9     950,000        1.27      2.0%      623,660   12,473
   17
   18
   19
   20
   21-May-92  08:55 AM                       CMD
```
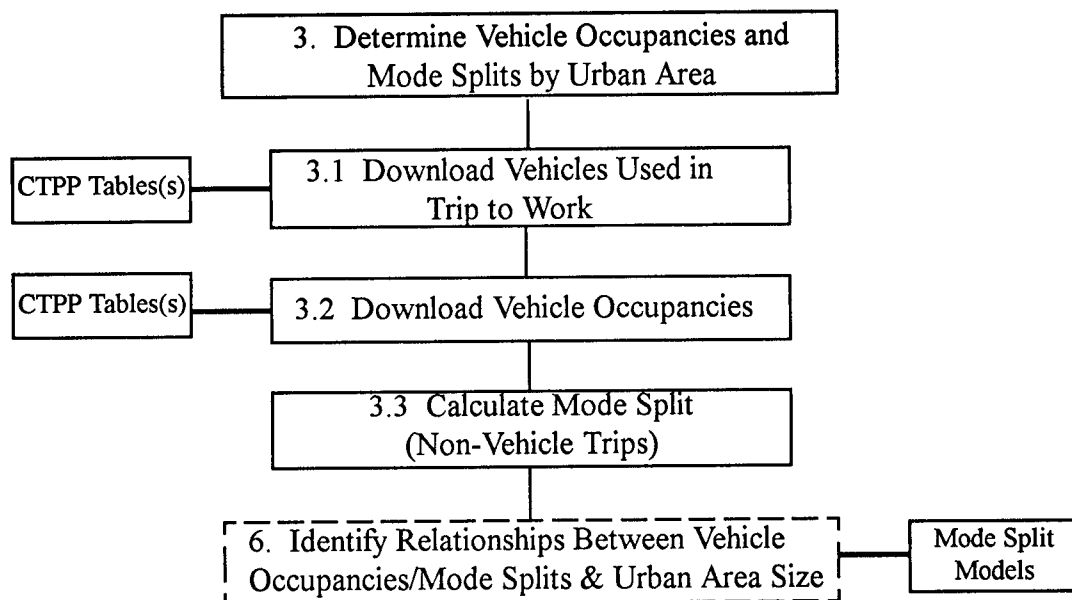
```
┌─────────────────────────────────────┐
│  3.  Determine Vehicle Occupancies and │
│       Mode Splits by Urban Area        │
└─────────────────────────────────────┘
                    │
┌──────────────┐  ┌─────────────────────────────┐
│CTPP Tables(s)│──│ 3.1  Download Vehicles Used in │
└──────────────┘  │        Trip to Work            │
                  └─────────────────────────────┘
                    │
┌──────────────┐  ┌─────────────────────────────┐
│CTPP Tables(s)│──│ 3.2  Download Vehicle Occupancies │
└──────────────┘  └─────────────────────────────┘
                    │
                  ┌─────────────────────────────┐
                  │ 3.3  Calculate Mode Split      │
                  │       (Non-Vehicle Trips)      │
                  └─────────────────────────────┘
                    │
┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┐   ┌────────────┐
│ 6.  Identify Relationships Between Vehicle │──│ Mode Split │
│ Occupancies/Mode Splits & Urban Area Size │   │  Models    │
└─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┘   └────────────┘
```

Questions to be answered:

Step 3.1   1.   What is the universe of the CTPP Table used to determine vehicle occupancies?

2.   After completing Step 3.1, what is the average vehicle occupancy in Capital City?

Step 3.2   3.   What travel modes in CTPP Table C-1 would you use to determine non-vehicle trips?

4.   How many non-vehicle trips were made in Green City?

Step 3.3   5.   How did you calculate mode split using Table C-1?

6.   What is the mode split (percentage of non-vehicle trips) in Border City?

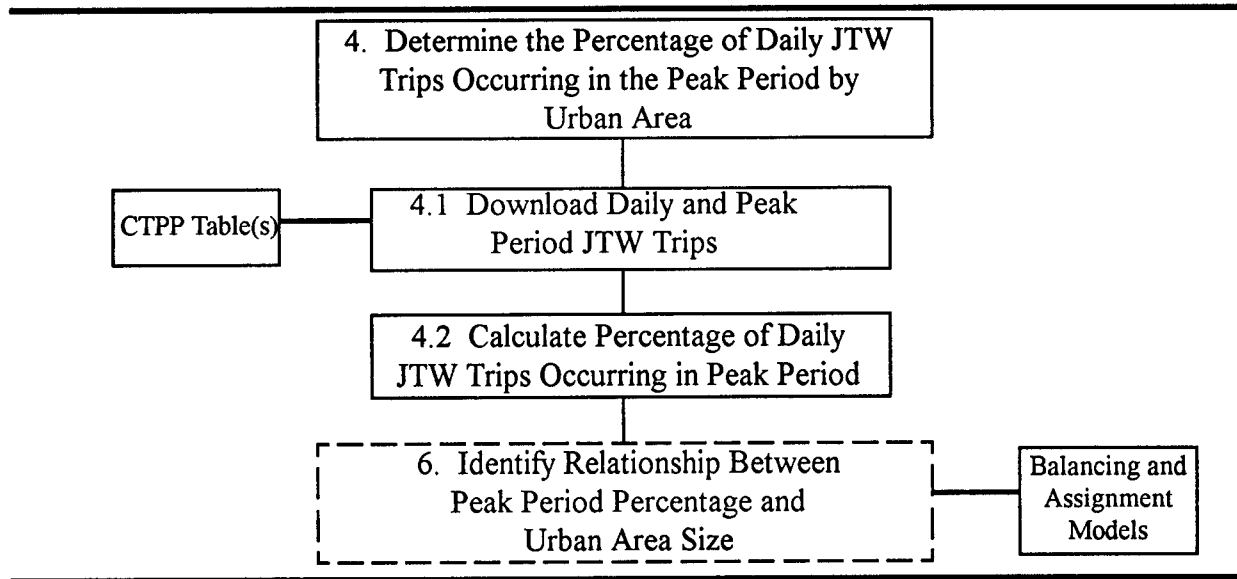# CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

Step 4   <u>Determine Peak-to-Daily Ratios (% Peak)</u>

   4.1   Download CTPP Table C-1. (This has already been done and stored in file DAILY-PK.PRN)

   4.2   Calculate peak period-to-daily percentage. Peak period JTW trips are divided into daily HBW trips using the following formula in cell F8:
          +E8/D8

<u>The Screen Should Look Like This:</u>

```
A1: [W7] 'ESTIMATE PEAK                                            MENU
Step 4.1  Step 4.2  Review  Step 5  Quit  CS Menu
Go to Step 4
         A        B      C        D           E           F        G
1    ESTIMATE PEAK HOUR PERCENTAGES
2
3                                         AM Peak
4                                Daily    Period   Peak Period
5                                 HBW       JTW      to Daily
6       City  Population         Trips    Trips       Ratio
7    -------------------  -----------------------------------------
8        1      50,000        51,522     18,909       36.7%
9        2      65,000        71,499     27,313       38.2%
10       3     150,000       177,273     66,300       37.4%
11       4     225,000       300,000    114,900       38.3%
12       5     275,000       352,499    136,417       38.7%
13       6     550,000       675,715    268,935       39.8%
14       7     675,000       843,750    329,906       39.1%
15       8     850,000       991,666    398,650       40.2%
16       9     950,000     1,128,825    463,947       41.1%
17
18
19
20
                                          CMD
```

32

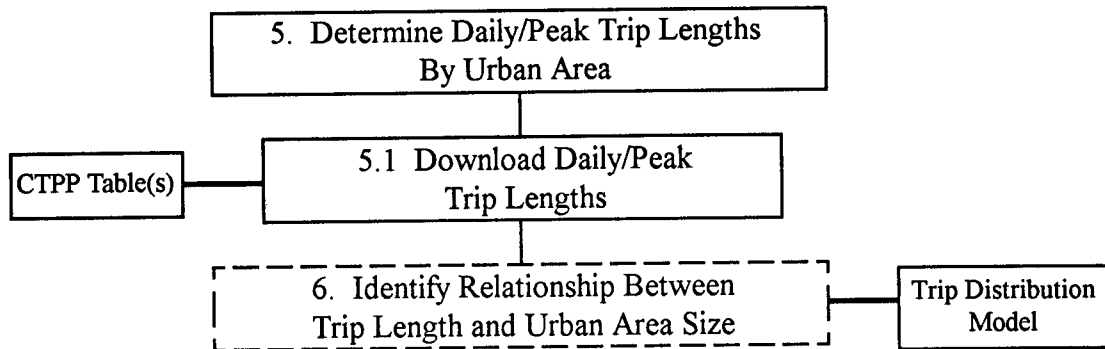**CASE STUDY:** <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>
PERCENTAGE OF PEAK PERIOD TRIPS

```
┌──────────────────────────────────────────┐
│  4.  Determine the Percentage of Daily JTW │
│      Trips Occurring in the Peak Period by  │
│                  Urban Area                 │
└──────────────────────────────────────────┘
                      │
┌─────────────┐   ┌──────────────────────────────┐
│ CTPP Table(s)├───│  4.1  Download Daily and Peak │
└─────────────┘   │        Period JTW Trips        │
                  └──────────────────────────────┘
                      │
                  ┌──────────────────────────────┐
                  │  4.2  Calculate Percentage of Daily │
                  │   JTW Trips Occurring in Peak Period │
                  └──────────────────────────────┘
                      │
      ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐   ┌──────────────┐
      │  6.  Identify Relationship Between │───│ Balancing and │
      │      Peak Period Percentage and    │   │  Assignment   │
      │          Urban Area Size           │   │    Models     │
      └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘   └──────────────┘
```

Questions to be answered:

Step 4.1   1.   What is the universe of the CTPP Table you used to determine daily and peak JTW trips?

2.   How is the peak period defined in Table C-1?

3.   What tables could you use to determine peak hour JTW trips from the CTPP?

4.   How many peak period JTW trips are generated a day in River City?

Step 4.2   5.   What city has the highest percentage of peak period trips?

CASE STUDY: TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE

Step 5   Determine Average Daily and Peak Hour Travel Times

   5.1   Download CTPP Table C-7 (C-6 can also be used and may be preferable when the travel time distribution is thought to be extremely skewed or to have outliers). This has already been done and stored in file T-TIMES. PRN.

Step 6   Graph travel characteristics/urban size relationships and determine the statistical strength of relationships

   6.1   Import trip rates calculated in Step 2.
   6.2   Import vehicle occupancies and mode splits calculated in Step 3.
   6.3   Import percentages calculated in Step 4.

<u>The Screen Should Look Like This:</u>

```
A1: [W5] 'Summary of Ur                                                      MENU
Step 5.1  Step 6.1  Step 6.2  Step 6.3  Step 6.4  Quit  CS-Menu
Import travel times
        A        B        C        D      E        F        G       H       I
 1   Summary of Urban Area Travel Characteristics
 2
 3                              Travel Time
 4                              (minutes)      HBW
 5                              ------------   Trips    Vehicle  Mode   Peak to
 6   City     Pop.     HHs      Daily  Peak    per HH   Occpncy  Split  Daily
 7   ------------------------------------------------------------------------
 8    1      50,000   21,739    5.4    5.8     2.70     1.25     0.1%   36.7%
 9    2      65,000   29,545    5.3    6.0     2.68     1.36     0.1%   38.2%
10    3     150,000   68,182    5.7    6.1     2.61     1.30     0.1%   37.4%
11    4     225,000  107,143    6.3    6.7     2.52     1.27     0.1%   38.3%
12    5     275,000  125,000    6.6    6.9     2.47     1.31     0.3%   38.7%
13    6     550,000  261,905    7.5    8.5     2.23     1.29     0.8%   39.8%
14    7     675,000  337,500    7.4    8.7     2.21     1.27     0.9%   39.1%
15    8     850,000  472,222   10.3   12.6     2.06     1.26     1.9%   40.2%
16    9     950,000  558,824   11.7   13.3     1.98     1.27     2.0%   41.1%
17
18
19
20
                                          CMD
```

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>
TRIP LENGTH VS. URBAN AREA SIZE

```
                    ┌──────────────────────────────────┐
                    │  5.  Determine Daily/Peak Trip Lengths │
                    │            By Urban Area           │
                    └──────────────────────────────────┘
                                    │
┌─────────────┐      ┌──────────────────────────────────┐
│ CTPP Table(s)├──────┤   5.1  Download Daily/Peak        │
└─────────────┘      │            Trip Lengths           │
                     └──────────────────────────────────┘
                                    │
            ┌─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┐      ┌──────────────────┐
            │   6.  Identify Relationship Between │──────┤ Trip Distribution │
            │   Trip Length and Urban Area Size  │      │      Model        │
            └─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─┘      └──────────────────┘
```

Questions to be answered:

Step 5   1.   What are the universes of CTPP Tables used to identify travel times?
                    When is it appropriate to use median travel times?

             2.   CTPP reports perceived travel times that may differ from actual travel
                    times. How would you expect actual travel times to differ from
                    perceived travel times?

             3.   What is the average JTW travel time for River City?

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

6.4   Review relationships

        6.4.1   Prepare scatterplots of travel characteristics/urban size relationships to "see" relationships for trip rates, travel times, vehicle occupancies, mode splits and peak percentages as shown in **Exhibits CS-A-3** through **CS-A-7**.

        6.4.2   Use regression analysis to determine statistical relationships between travel characteristics and urban size. Regression results are shown in **Exhibit CS-A-8.**

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

TRIP RATE SCATTERPLOT
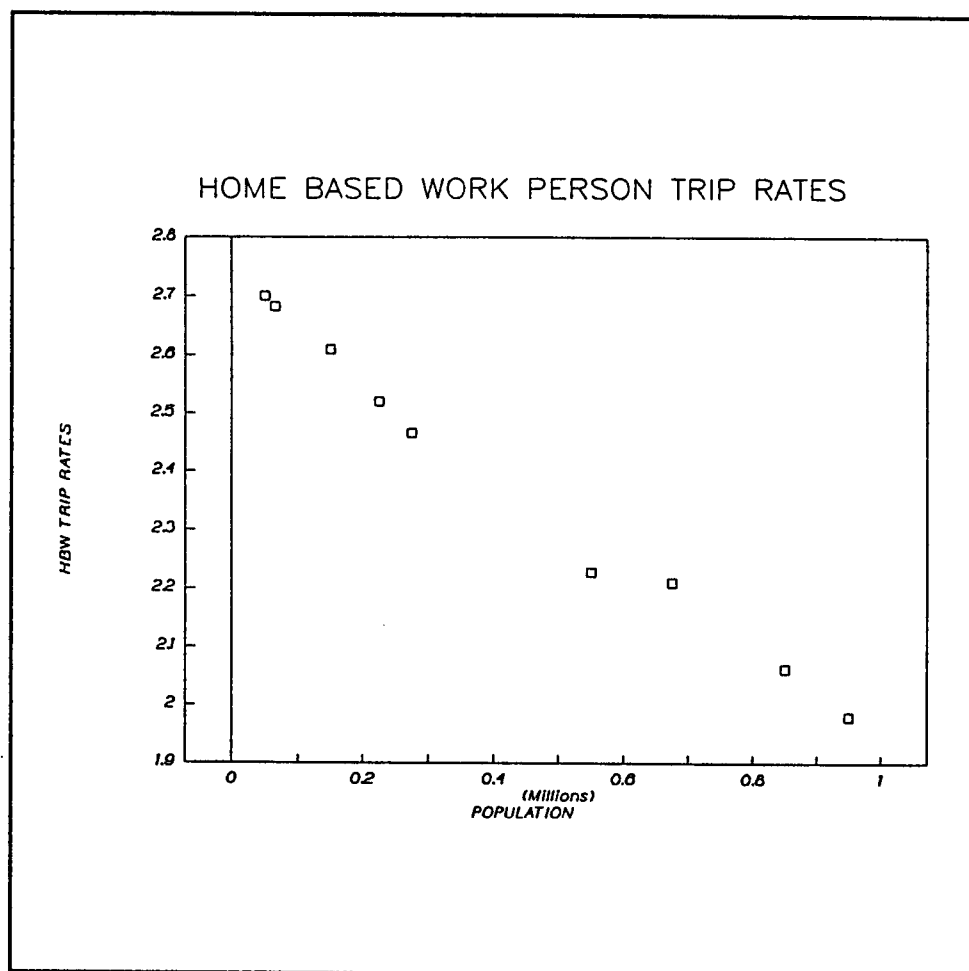
Exhibit CS-A-3

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

TRAVEL TIME SCATTERPLOT

HBW TRAVEL TIMES
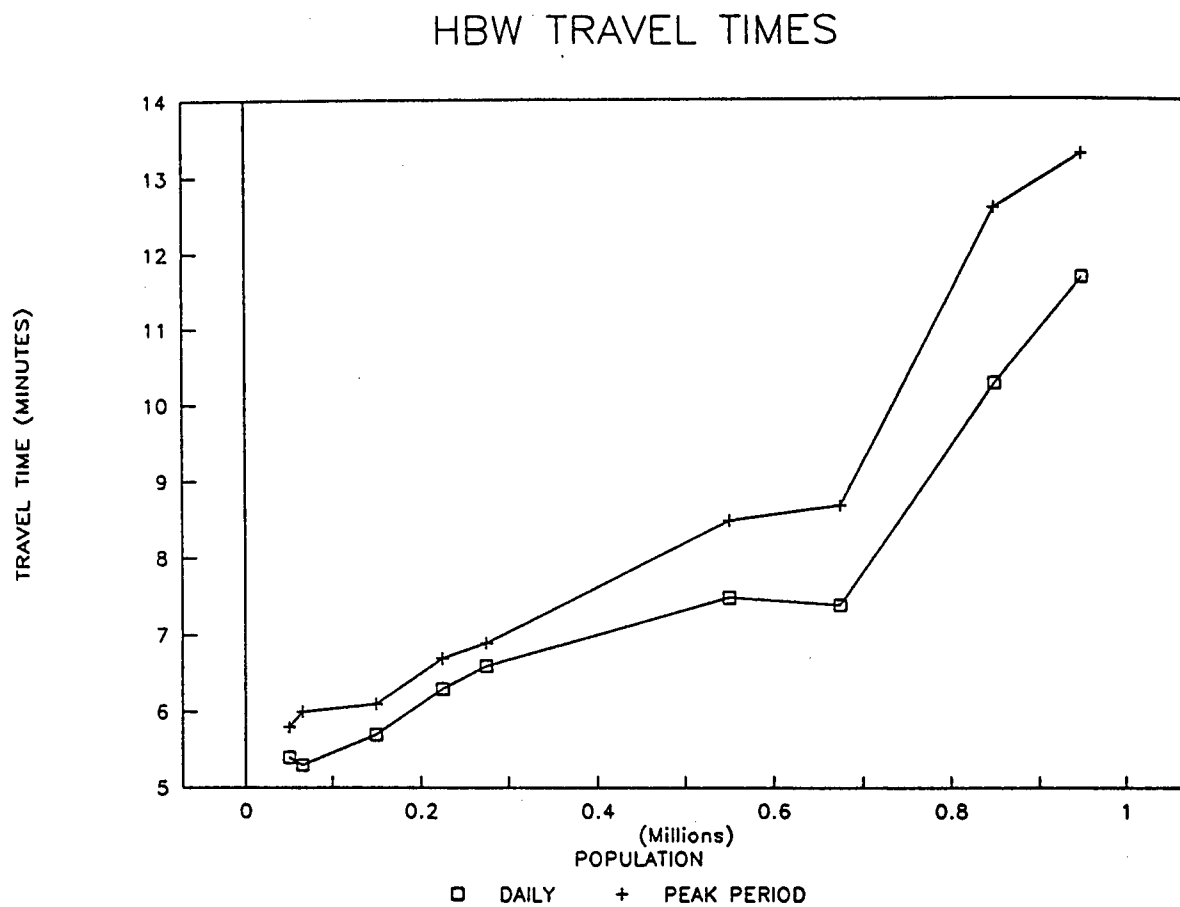
Exhibit CS-A-4

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

VEHICLE OCCUPANCY SCATTERPLOT

HBW VEHICLE OCCUPANCIES
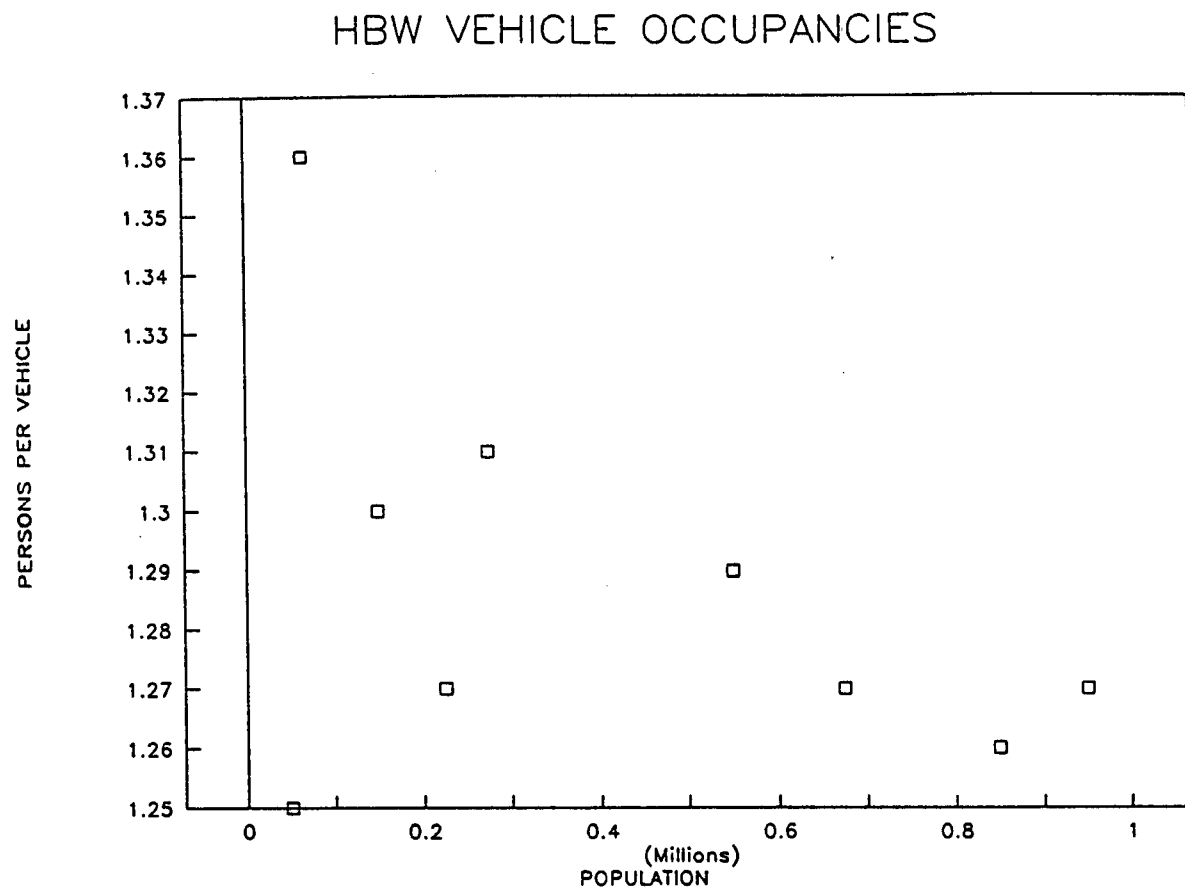
Exhibit CS-A-5

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

TRANSIT SCATTERPLOT
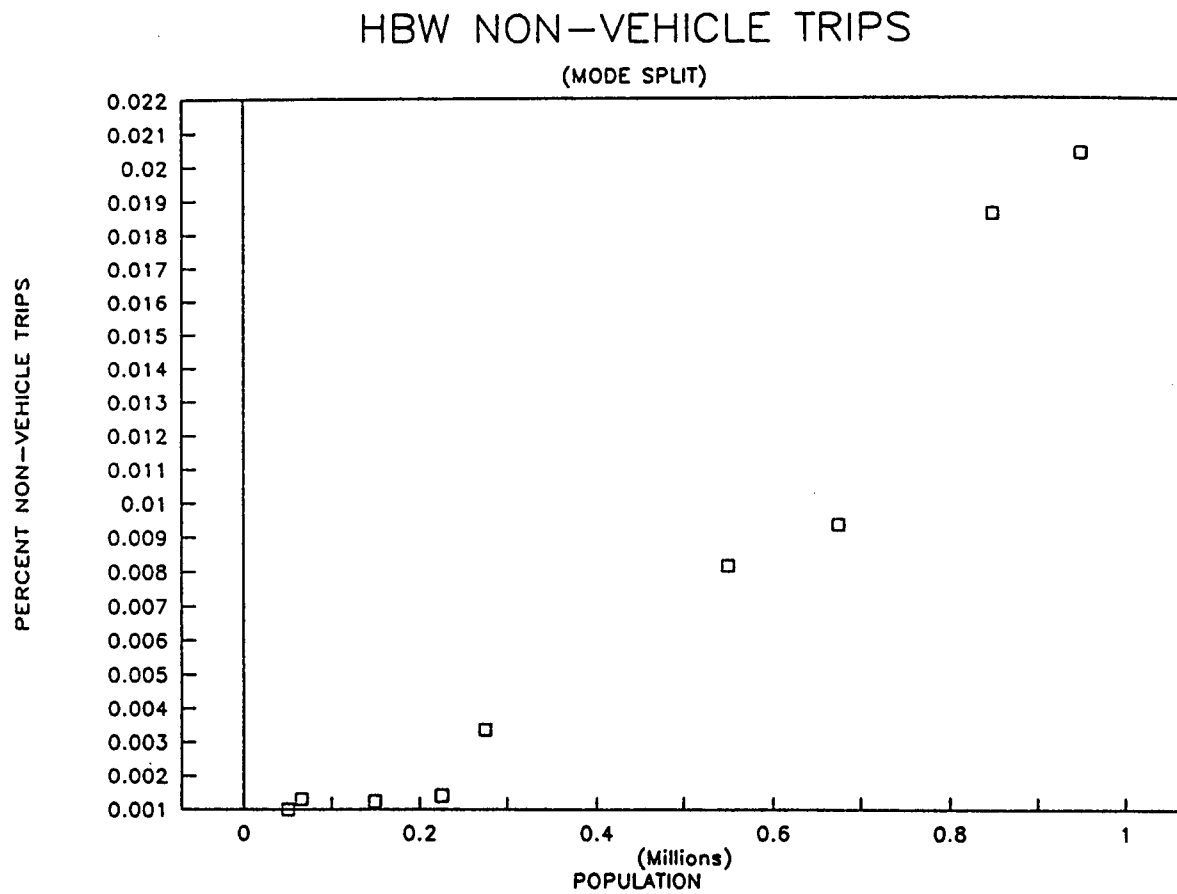
HBW NON-VEHICLE TRIPS
(MODE SPLIT)

Exhibit CS-A-6

PEAK-TO-DAILY SCATTERPLOT
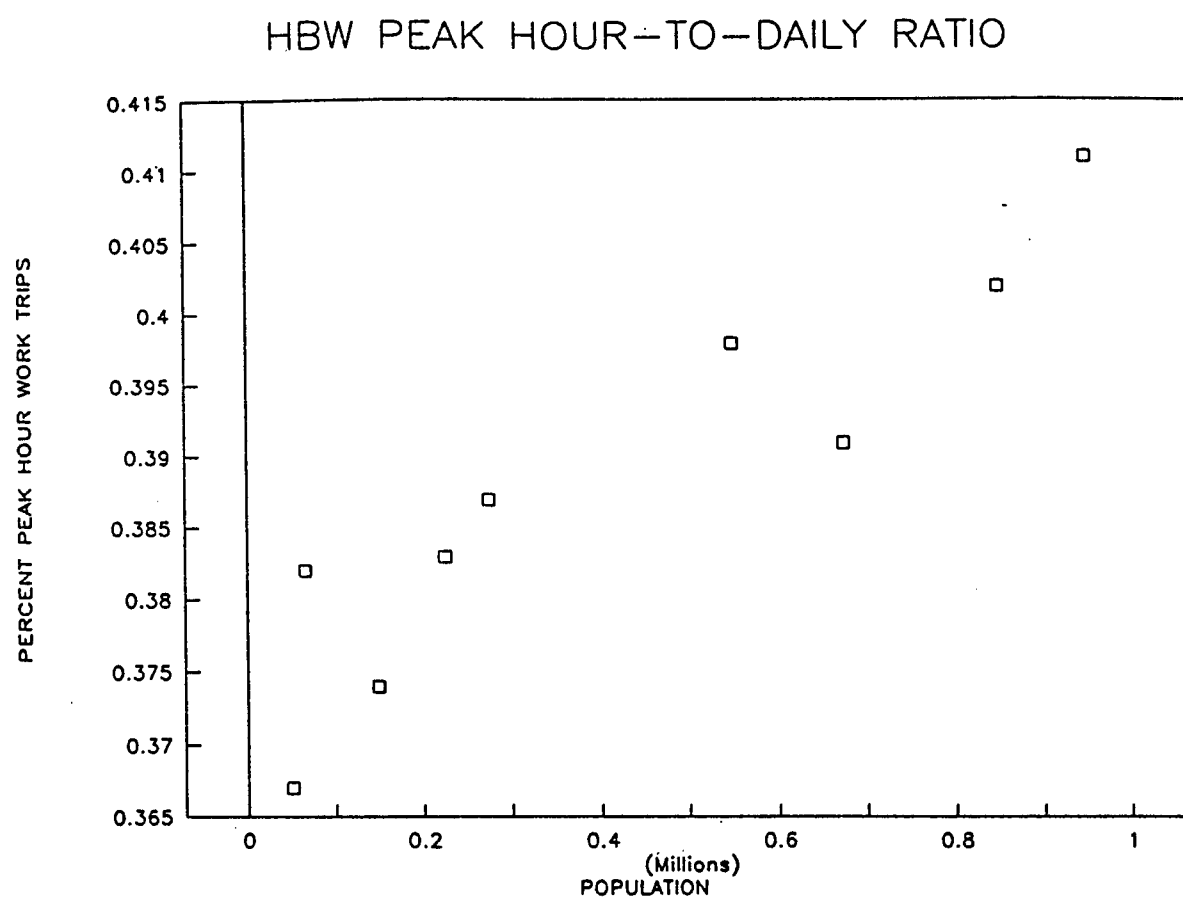
Exhibit CS-A-7

REGRESSION RESULTS

```
HBW Rates Regression Output:
Constant                  2.714
Std Err of Y Est          0.030
R Squared                 0.988
No. of Observations           9
Degrees of Freedom            7

X Coefficient(s)   -0.000
Std Err of Coef.    0.0000
```

```
HBW Travel Times              Regression Output
--------------------------------------------------
Constant                           4.7578937442
Std Err of Y Est                   0.7723154478
R Squared                          0.8957276139
No. of Observations                           9
Degrees of Freedom                            7

X Coefficient(s)     0.0000061686
Std Err of Coef.     0.0000007955
```

```
HBW Vehicle Occupancies -      Regression Output
--------------------------------------------------
Constant                           1.3046785449
Std Err of Y Est                   0.0322392056
R Squared                          0.191603929
No. of Observations                           9
Degrees of Freedom                            7

X Coefficient(s)     -0.0000000428
Std Err of Coef.      0.0000000332
```

```
Mode-SplitRegression Output:
Constant                  -0.00
Std Err of Y Est           0.002
R Squared                  0.924
No. of Observations            9
Degrees of Freedom             7

X Coefficient(s)     0.0000
Std Err of Coef.     0.0000
```

```
HBW Peak to Daily Ratios -     Regression Output
--------------------------------------------------
Constant                           0.3726705556
Std Err of Y Est                   0.0056942254
R Squared                          0.8517891937
No. of Observations                           9
Degrees of Freedom                            7

X Coefficient(s)     0.0000000372
Std Err of Coef.     0.0000000059
```

Exhibit CS-A-8

42

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

GRAPH AND SUMMARIZE RELATIONSHIPS

Questions to be answered:

Step 6.4   1.   What is the general relationship between trip rates and population as illustrated by the scatterplot?

2.   What is the R^2 for trip rates and population?

3.   Does the scatterplot indicate a strong relationship between travel times and population?

4.   What is the R^2 for daily travel times and population?

5.   Does the scatterplot indicate a strong relationship between vehicle occupancies and population?

6.   What is the R^2 for vehicle occupancies and population? Is it lower than expected after reviewing the scatterplot and, if so, why?

7.   Are groupings of the mode split data points evident? What may have caused these groupings?

8.   What is the R^2 for mode split and population?

9.   Is there a strong relationship between peak hour percentages and population? Are groupings evident?

10.   What is the R^2 for peak hour percentages and population?

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

Other Questions:

1.   How would you use the relationships found from the data for travel demand forecasting?

2.   Could you extrapolate these relationships to urban areas that are larger or smaller than those in the State of States?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE
(USING THE CTPP DIRECTLY FOR TRANSPORTATION PLANNING ANALYSIS)

INTRODUCTION

The city council is concerned about the commuter bus service currently provided to workers in the CBD. They would like to know which routes are effective, those that are not and why the ineffective routes are operating poorly. To provide the information needed, use CTPP tables and the steps presented on the following pages.

Bus ridership among choice riders (those who have access to a personal vehicle) is typically influenced by the following factors:

- comparative bus vs. auto travel times (bus times include time spent waiting for the bus, ride time and, if necessary, time to transfer);

- comparative travel costs (auto operating costs vs. bus fare);

- parking costs; and

- other factors (such as the walk distance to or from bus stops).

Commuter bus fares and downtown parking costs are the same for all commuter routes. Therefore, either travel times or some other factors affect ridership among routes.

Use the CTPP tables to identify those routes with comparatively poor travel times versus auto travel. This information will be used to determine route changes that can be made to improve travel times for identified routes. In addition, travel time/mode share comparisons will indicate whether other factors are influencing mode share. If so, more detailed analysis will be conducted for the identified routes in an attempt to find out what those other factors are.

This case study is CS-4 on the Lotus diskette provided. To begin, select Case Study 4, Situation 2, from the CS-Menu spreadsheet or retrieve file "CS-4-2.WK1" into a blank Lotus 1-2-3 spreadsheet. Use the menus provided in the spreadsheet to step through the case study and answer the case study questions presented on the following pages.

```
┌─────────────────┐      ┌──────────────────────────────┐
│    TAZ Map      │─────▶│     1. Identify CBD TAZs      │
└─────────────────┘      └──────────────────────────────┘
                                        │
                                        ▼
┌─────────────────┐      ┌──────────────────────────────┐      ┌──────────────────────┐
│  Bus Route Map  │─────▶│ 2. Identify Route Travelsheds │─────▶│   Travelshed/TAZ     │
└─────────────────┘      └──────────────────────────────┘      │     Equivalency      │
                                        │                       └──────────────────────┘
                                        ▼
                         ┌──────────────────────────────┐
                         │ 3. Identify Travelshed to CBD │
                         │      Trips/Travel Times        │
                         └──────────────────────────────┘
                                        │
┌─────────────────┐      ┌──────────────────────────────┐
│   CTPP Tables   │─────▶│      3.1 Import CTPP Trips     │◀──────
└─────────────────┘      └──────────────────────────────┘
                                        │
                         ┌──────────────────────────────┐
                  ──────▶│   3.2 Import CTPP Travel Times │◀──────
                         └──────────────────────────────┘
                                        │
                                        ▼
                         ┌──────────────────────────────┐
                         │ 3.3 Calculate Total Travel Times │
                         └──────────────────────────────┘
                                        │
                                        ▼
                         ┌──────────────────────────────┐      ┌──────────────────────┐
                         │   4. Calculate Mode Shares -   │─────▶│     Poor Travel      │
                         │    Comparative Travel Times    │      │    Time Routes       │
                         └──────────────────────────────┘      └──────────────────────┘
                                        │
                                        ▼
                         ┌──────────────────────────────┐
                         │ 5. Determine Statistical Relationships │
                         │   (Travel Time vs. Mode Share) │
                         └──────────────────────────────┘
                                        │
                                        ▼
                         ┌──────────────────────────────┐
                         │ ID Routes that are operating poorly │
                         │   because of "other" factors   │
                         └──────────────────────────────┘
```
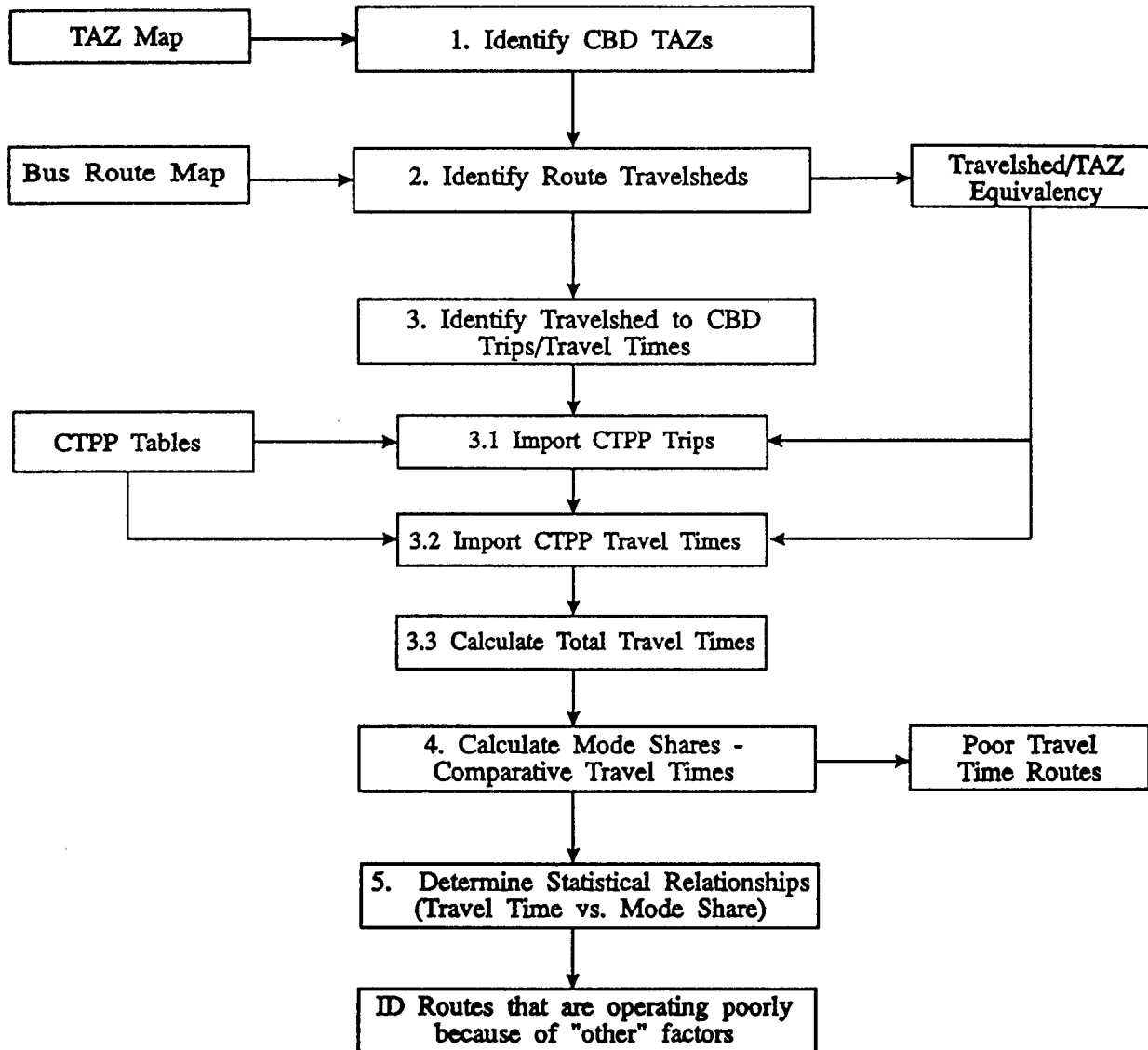
Exhibit CS-B-1

ASSESSING THE EFFECTIVENESS OF COMMUTER BUS SERVICE

PREPARING FOR ANALYSIS:

1.   The city council has asked about the effectiveness of commuter bus service. What is the universe in the CTPP that would provide data for this analysis?

2.   What would be the most useful geographic summary level for this analysis?

3.   What types of information will be needed up front before using the CTPP?

4.   What information about commuter bus service would help to find solutions for the city council?

5.   Turn now to the Appendix. What CTPP tables would be most helpful in doing this analysis?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

This step has already been done. The CBD Traffic Analysis Zones are shown below:
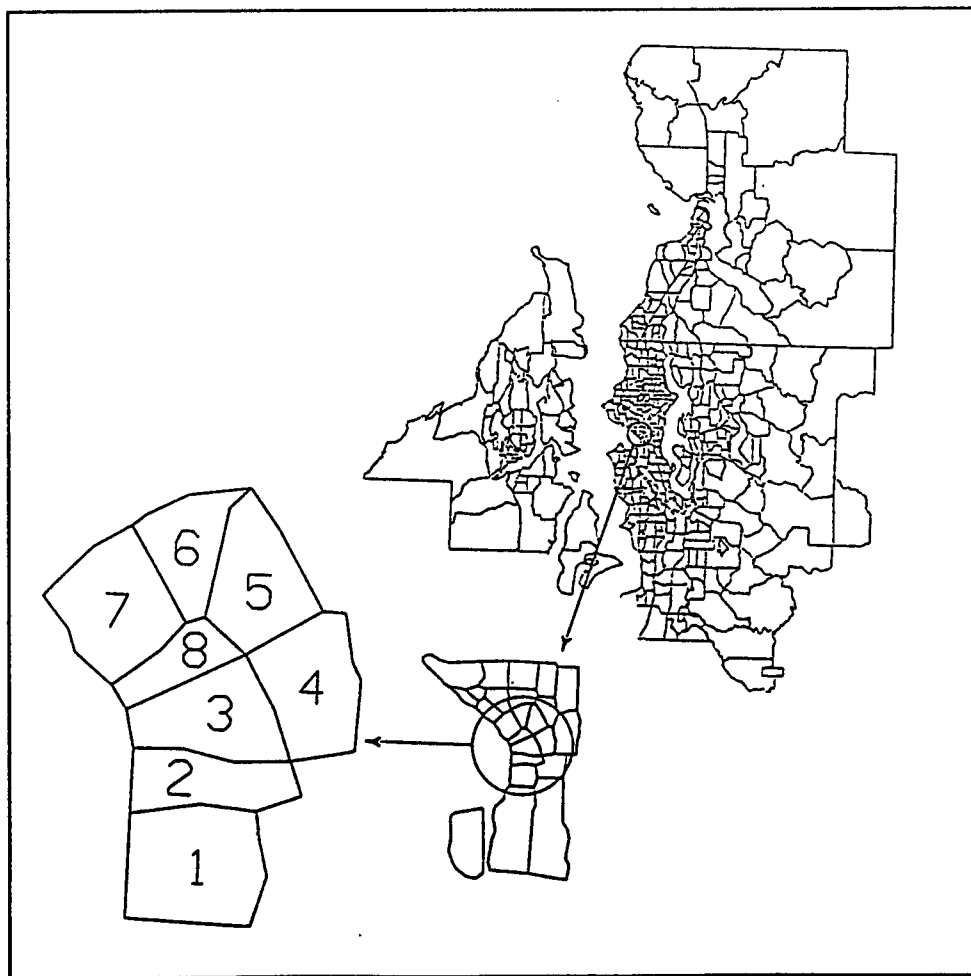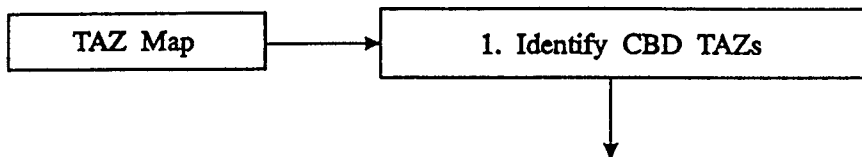
Exhibit CS-B-2

CASE STUDY: <u>ASSESSING COMMUTER BUS SERVICE</u>

This step has already been done. Travel sheds are shown below:

```
                              ┌──────────────────────────────┐              ┌──────────────────┐
┌──────────────────┐          │                              │              │  Travelshed/TAZ  │
│  Bus Route Map   │───────▶  │  2. Identify Route Travelsheds │───────▶    │  Equivalency     │
└──────────────────┘          │                              │              └──────────────────┘
                              └──────────────────────────────┘
```


1. Lakewood/Gig Harbor
2. Southeast Pierce County
3. Tacoma
4. Federal Way/Auburn
5. Kent/Soos Creek
6. Burien/Tukwila/Renton
7. Issaquah
8. Bellevue
9. Redmond/Kirkland
10. South Seattle
11. Downtown Seattle
12. Capitol Hill/Queen Anne
13. North Seattle
14. Shoreline
15. Lynnwood/Edmonds
16. Mill Creek/Cathcart
17. Everett
18. Marysville/Snohomish
19. Kitsap County

Exhibit CS-B-3

1.   How would you identify travel sheds using route maps?

CASE STUDY: <u>ASSESSING COMMUTER BUS SERVICE</u>

2.2   Develop travel shed/TAZ equivalency list (**Exhibit CS-B-4**).

Travelshed/TAZ Equivalencies	
TAZ/CT	Travelshed
1	11
2	11
3	11
4	11
5	11
6	11
7	11
8	11
.	.
.	.
.	.
.	.

Exhibit CS-B-4

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 3   Identify J-T-W trips and travel times from each travel shed to the CBD

3.1   Download worker flow data from the CTPP. Use the equivalency list (Step 2.2) to aggregate TAZ data to travel shed totals. The Lotus 1-2-3 template is designed to help with this step of the case study.

Downloading and aggregating J-T-W trips to travel shed totals have been done and stored in worksheet file JTW-TRIP.WK1. Select Step 3.1 from the CS-4-2.WK1 menu and respond to prompts. When the menu reappears, the screen should look like this:

```
A1: [W34] 'CTPP TABLE C-1 or 3-1                                           MENU
Step 3.1  Step 3.2  Step 3.3  Step 4  Step 5  Step 6  Quit  CS Menus
Import JTW-Trip spreadsheet
                     A                    B         C       D       E
1   CTPP TABLE C-1 or 3-1
2   Nonhome Workers by Detailed Means of Transportation by Total/Peak Period
3   Number of Cells = 20*2=40
4                                         Trips to CBD from:
5   Import area(s) (goto AA1 for Table Summary)
6                                         T-Shed  T-Shed  T-Shed
7   Strat1                       Strat2      1       2       3
8   ------------------------------------------------------------------
9   Total                        Total      463    1337    4535
10  Drive Alone                  Total      371     969    3215
11  2 Worker Vehicle Pool        Total       30      86     291
12  3 Worker Vehicle Pool        Total        9      38     136
13  4 Worker Vehicle Pool        Total        5      13      45
14  5 Worker Vehicle Pool        Total        0       0       0
15  6 Worker Vehicle Pool        Total        0       0       0
16  7-9 Worker Vehicle Pool      Total        0       0       0
17  10+ Worker Vehicle Pool      Total        0       0       0
18  Bus/trolley bus              Total       48     231     848
19  Street car/trolley car       Total        0       0       0
20  Railroad                     Total        0       0       0
                                 CMD
```

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

3.2 Download J-T-W travel times between each travel shed and the CBD from the CTPP. When aggregating TAZs into travel sheds, travel time averages are needed rather than totals. The Lotus 1-2-3 templates provide simple averages. You could develop weighted averages by combining travel times with trips.

Downloading and averaging travel times have been done, these are stored in worksheet file JTW-TIME.WK1. Select Step 3.2 from the menu and respond to prompts. When the menu reappears, the screen should look like this:

```
A61: [W34]                                                        MENU
Step 3.1  Step 3.2  Step 3.3  Step 4  Step 5  Step 6  Quit  CS Menus
Import JTW-Trip spreadsheet
                  A                    B        C        D        E
61  CTPP TABLE
62  Mean Travel Time of Nonhome Workers, by Detailed Means of Trans., by Tot
63  Number of Cells = 20*2=40
64                                           Travel time to CBD from:
65  Import area(s) (goto AA1 for Table Summary)
66                                       T-Shed   T-Shed   T-Shed
67  Strat1                      Strat2      1        2        3
68  --------------------------------------------------------------------
69  Total                       Total       42       39       35
70  Drive Alone                 Total       39       36       34
71  2 Worker Vehicle Pool       Total       39       36       34
72  3 Worker Vehicle Pool       Total       39       36       34
73  4 Worker Vehicle Pool       Total       39       36       34
74  5 Worker Vehicle Pool       Total       39       36       34
75  6 Worker Vehicle Pool       Total       39       36       34
76  7-9 Worker Vehicle Pool     Total       39       36       34
77  10+ Worker Vehicle Pool     Total       39       36       34
78  Bus/trolley bus             Total       51       45       40
79  Street car/trolley car      Total        0        0        0
80  Railroad                    Total        0        0        0
                                CMD
```

3.3 Use downloaded JTW trips and travel times to calculate total travel time. Select Step 3.3 from the menu and press **M** to complete Step 3.3 with the help of menus or any other key to complete Step 3.3 without menu help. The following formula calculates total travel time in hours:

Trips * Travel Time / 60

The dividend of 60 converts travel times (reported in minutes) into hours.

After completing Step 3.3, the screen should look like this:

```
C129: (F1) +TOTAL*C69/60                                          MENU
Step 3.1  Step 3.2  Step 3.3  Step 4  Step 5  Step 6  Quit  CS Menus
Import JTW-Trip spreadsheet
                A               B        C        D        E
121 TOTAL PERSON HOURS TRAVELED
122 (Trips * Travel Time / 60)
123
124                                    Travel hours to CBD from:
125
126                                    T-Shed  T-Shed  T-Shed
127 Strat1                     Strat2     1       2       3
128 -----------------------------------------------------------------
129 Total                      Total    324.1   869.1  2645.4
130 Drive Alone                Total    241.2   581.4  1821.8
131 2 Worker Vehicle Pool      Total     19.5    51.6   164.9
132 3 Worker Vehicle Pool      Total      5.9    22.8    77.1
133 4 Worker Vehicle Pool      Total      3.3     7.8    25.5
134 5 Worker Vehicle Pool      Total      0.0     0.0     0.0
135 6 Worker Vehicle Pool      Total      0.0     0.0     0.0
136 7-9 Worker Vehicle Pool    Total      0.0     0.0     0.0
137 10+ Worker Vehicle Pool    Total      0.0     0.0     0.0
138 Bus/trolley bus            Total     40.8   173.3   565.3
139 Street car/trolley car     Total      0.0     0.0     0.0
140 Railroad                   Total      0.0     0.0     0.0
                               CMD
```

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Questions to be answered:

1. What CTPP table would you download for JTW trips (refer to Appendix)?

2. What is the total number of trips to the CBD? What travel shed generates the most trips?

3. What CTPP table would you download for JTW travel times? When would you use median travel times? Why?

4. What is the average travel time from travel shed 1 to the CBD? How would you calculate a weighted average time?

5. How would you calculate total travel times given number of trips and travel times?

6. What is the total Person Hours Traveled (PHT) to the CBD? What percentage of the PHT is by transit?

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Step 4   Calculate mode shares and the comparative speeds between auto and transit. This step is needed for determining the relationship between mode share and travel times. This will identify those travel sheds with comparatively slow service.

Select Step 4 from the menu and press **M** for Menu help with Step 4 or any other key to complete Step 4 without menus. If M is pressed for menu help, the following screen and sub-menu should appear:

```
A201: [W34] 'MODPress M for Step 4 menus -- any other key for Step 4 W/out menus


                      A                  B      C      D      E
201 MODE SHARES AND TRAVEL TIMES
202
203                                      Trips between CBD and:
204
205                                      Trvlshd  Trvlshd  Trvlshd
206                                         1        2        3
207                                      --------------------------
208 MODE SHARES
209    Percent Vehicle Trips
210    Percent Transit Trips
211
212 TRAVEL TIMES by MODE
213    Average Vehicle Commuting Time (minutes)
214    Average Transit Commuting Time (minutes)
215     Transit/Vehicle Travel Time Ratio
216
217
218
219
220
                              CMD
```

The following equations are used in Step 4:

- % vehicle trips = sum of all vehicle trips / total trips
- % transit trips = sum of all transit trips / total trips
- Avg. vehicle commute time = sum of vehicle PHT / sum of vehicle trips
- Avg. transit commute time = sum of transit PHT / sum of transit trips
- Vehicle/Transit travel time ratio = avg. vehicle commute time/avg. transit commute time

55

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

Steps 4.1 through 4.6

After responding to all menu prompts (menu help) or entering all Step 4 equations, the screen should look like this:

```
A201: [W34] 'MODE SHARES AND TRAVEL TIMES                              MENU
Step 4.1  Step 4.2  Step 4.3  Step 4.4  Step 4.5  Step 4.6  Menu
Calculate non-transit travel share
                        A            B        C        D        E
201 MODE SHARES AND TRAVEL TIMES
202
203                                       Trips between CBD and:
204
205                                      Trvlshd  Trvlshd  Trvlshd
206                                         1        2        3
207                                      --------------------------
208 MODE SHARES
209    Percent Vehicle Trips             89.6%    82.7%    81.3%
210    Percent Transit Trips             10.4%    17.3%    18.7%
211
212 TRAVEL TIMES by MODE
213    Average Vehicle Commuting Time (minutes)  39.0  36.0  34.0
214    Average Transit Commuting Time (minutes)  51.0  45.0  40.0
215     Transit/Vehicle Travel Time Ratio        1.31  1.25  1.18
216
217
218
219
220
                              CMD
```

56

```
                    |
                    ▼
        ┌─────────────────────────────┐      ┌──────────────┐
        │  4. Calculate Mode Shares - │─────▶│  Poor Travel │
        │     Comparative Travel Times │      │  Time Routes │
        └─────────────────────────────┘      └──────────────┘
                    |
                    ▼
```

Questions to be answered:

1. Mode shares and travel times are calculated in this step. How did you calculate:

    - % Vehicle Trips?

    - % Transit Trips?

    - Avg. Vehicle Travel Times?

    - Avg. Transit Travel Times?

    - Travel Time Ratio?

2. Routes in what three travel sheds have relatively slow travel times?

CASE STUDY: <u>ASSESSING COMMUTER BUS SERVICE</u>

Step 5   Using the results from Step 4, determine statistical relationships between travel time ratios and mode shares. Results should indicate those travel sheds where factors other than travel times are causing routes to not attract a reasonable number of riders. Regression analysis will be used to predict mode split (% transit trips) based on the existing relationship between mode split and travel time ratios.

Select Step 5 from the menu. Press **M** to complete Step 5 with menu help, any other key to complete Step 5 without menus. The initial Step 5 screen should look like this:

```
B221: [W9] "T-shPress M for Step 5 menus -- any other key for Step 5 w/out menus


        B        C       D       E        F        G      H        I
221   T-shed   % Veh.  Ratio % Transit  % Est.         +       -
222      1     89.6%   1.31
223      2     82.7%   1.25
224      3     81.3%   1.18
225      4     99.2%   1.36
226      5     86.2%   1.26
227      6     80.9%   1.13
228      7     93.0%   1.13
229      8     95.9%   1.44
230      9     93.3%   1.37
231     10     95.9%   1.33
232     11     67.1%   1.00
233     12     82.3%   1.25
234     13     93.0%   1.33
235     14     93.0%   1.29
236     15     97.3%   1.45
237     16     93.1%   1.32
238     17     93.1%   1.31
239     18     93.4%   1.30
240     19     95.9%   1.45
                                         CMD
```

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

5.1 The percentage of transit trips is calculated by subtracting the percentage of vehicle trips from one.

5.2 The regression relationship between travel time and mode share is based on the following equation:

% Transit (dependent variable) = Travel Time Ratio (independent variable) * X coefficient + Constant

The Regression Output from Step 5.2 Should Look Like This:

```
B241: [W9]                                          Press Enter for menu


          B        C        D        E        F        G        H        I
241
242          Regression Output:
243 Constant                    0.834808
244 Std Err of Y Est            0.044381
245 R Squared                   0.701229
246 No. of Observations               19
247 Degrees of Freedom                17
248
249 X Coefficient(s)  -0.56902
250 Std Err of Coef.  0.090084
251
252
253
254
255
256
257
258
259
260
                                        CMD
```

5.3   The following formula is used to calculate an estimated percent transit from the regression equation calculated during Step 5.2:

Est. % Transit = Constant + X Coefficient * Travel Time Ratio

5.4   The confidence interval is a range that would include the true mean 9 out of every 10 times this relationship is tested. We are 90% sure that travel routes falling outside the confidence interval are so because of reasons other than sampling error. The following equation is used to set the upper confidence interval limit:

Upper confidence limit = % Est. Transit + Standard Error of Y Estimate (from regression output)

5.5   The lower confidence interval limit is defined using the following equation:

Lower confidence limit = % Est. Transit - Standard Error of Y Estimate

When Finished with Step 5 Regression, the Screen Should Look Like This:

```
H222: (P1) +F222-$E$244                                    MENU
Step 5.1  Step 5.2  Step 5.3  Step 5.4  Step 5.5  Menu
Enter formula for calculating % transit
        B       C       D       E       F       G       H       I
221  T-shed  % Veh.  Ratio % Transit % Est.      +       -
222     1    89.6%   1.31   10.4%    9.1%    13.5%    4.6%
223     2    82.7%   1.25   17.3%   12.4%    16.8%    7.9%
224     3    81.3%   1.18   18.7%   16.5%    21.0%   12.1%
225     4    99.2%   1.36    0.8%    5.9%    10.3%    1.4%
226     5    86.2%   1.26   13.8%   11.9%    16.3%    7.5%
227     6    80.9%   1.13   19.1%   19.0%    23.4%   14.6%
228     7    93.0%   1.13    7.0%   19.2%    23.6%   14.7%
229     8    95.9%   1.44    4.1%    1.3%     5.7%   -3.2%
230     9    93.3%   1.37    6.7%    5.7%    10.2%    1.3%
231    10    95.9%   1.33    4.1%    7.6%    12.0%    3.2%
232    11    67.1%   1.00   32.9%   26.6%    31.0%   22.1%
233    12    82.3%   1.25   17.7%   12.4%    16.8%    7.9%
234    13    93.0%   1.33    7.0%    7.6%    12.0%    3.2%
235    14    93.0%   1.29    7.0%   10.3%    14.8%    5.9%
236    15    97.3%   1.45    2.7%    1.1%     5.5%   -3.4%
237    16    93.1%   1.32    6.9%    8.1%    12.6%    3.7%
238    17    93.1%   1.31    6.9%    9.0%    13.4%    4.5%
239    18    93.4%   1.30    6.6%    9.4%    13.8%    4.9%
240    19    95.9%   1.45    4.1%    1.0%     5.4%   -3.5%
                              CMD
```

CASE STUDY: <u>ASSESSING COMMUTER BUS SERVICE</u>

```
┌─────────────────────────────────────────┐
│ 5.  Determine Statistical Relationships  │
│     (Travel Time vs. Mode Share)         │
└─────────────────────────────────────────┘
```
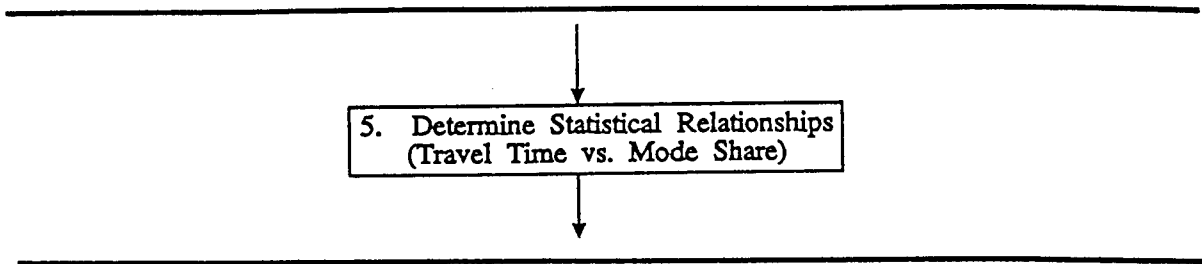
Questions to be answered:

1. Results from Step 4 are transposed in the spreadsheet for regression analysis. Regression analysis will be used to identify routes that operate poorly due to "other" factors. How can regression analysis provide this information?

2. Travel times are to be related to mode shares to determine the strength of the relationship and to estimate what travel times should be given actual travel times. For this regression model, what is the independent variable? What is the dependent variable?

3. What is the R^2 of the travel time and mode share relationship? Is this a strong relationship?

4. An estimate of ridership will be calculated based on regression results and actual travel times. How would you calculate estimated ridership?

5. A confidence interval helps define routes that truly are operating better or worse than expected. How would you calculate the upper and lower limits of the confidence interval?

CASE STUDY: <u>ASSESSING COMMUTER BUS SERVICE</u>

Step 6   Graph results using an XY-type graph available in Lotus 1-2-3. Select Step 6 from the menu and press **M** for menu help or press any other key to complete Step 6 without the menu.

6.1   You will need to sort the data, in ascending order, on the estimated percent transit column. All columns should be included in the sort range.

6.2   First graph the estimated versus actual percent transit. The estimated percent transit should appear as a line (no symbols) and the actual percent transit should appear as symbols (no line) with each symbol having a travel shed label. The graph should look like this:

TRAVEL TIME VS. MODE SHARE
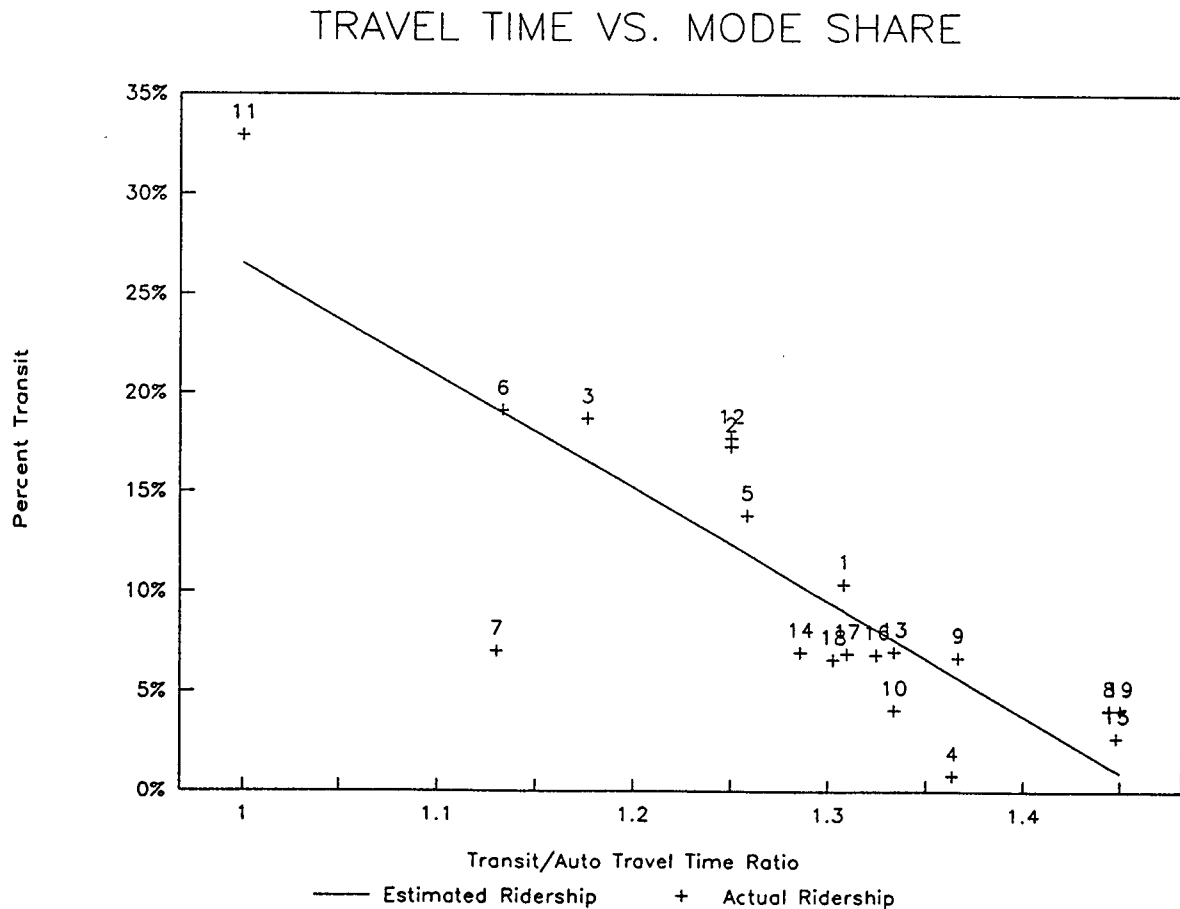
The travel sheds below the line are those with percent transit lower than expected. Those above the line are operating better than expected.

62

6.2   The second graph is similar to the first, except instead of a single estimated percent transit line, the confidence interval is used to evaluate routes. Remember, we are 90% confident that those routes falling outside the confidence interval are so for reasons other than sampling error. Therefore, we are 90% sure that travel sheds 4, 7, and 11 fall outside the confidence interval for reasons other than sampling error.

<u>The Final Graph Should Look Like This:</u>

TRAVEL TIME VS. MODE SHARE

```
              ┌─────────────────────────────────────┐
              │  ID Routes that are operating poorly │
              │     because of "other" factors       │
              └─────────────────────────────────────┘
```
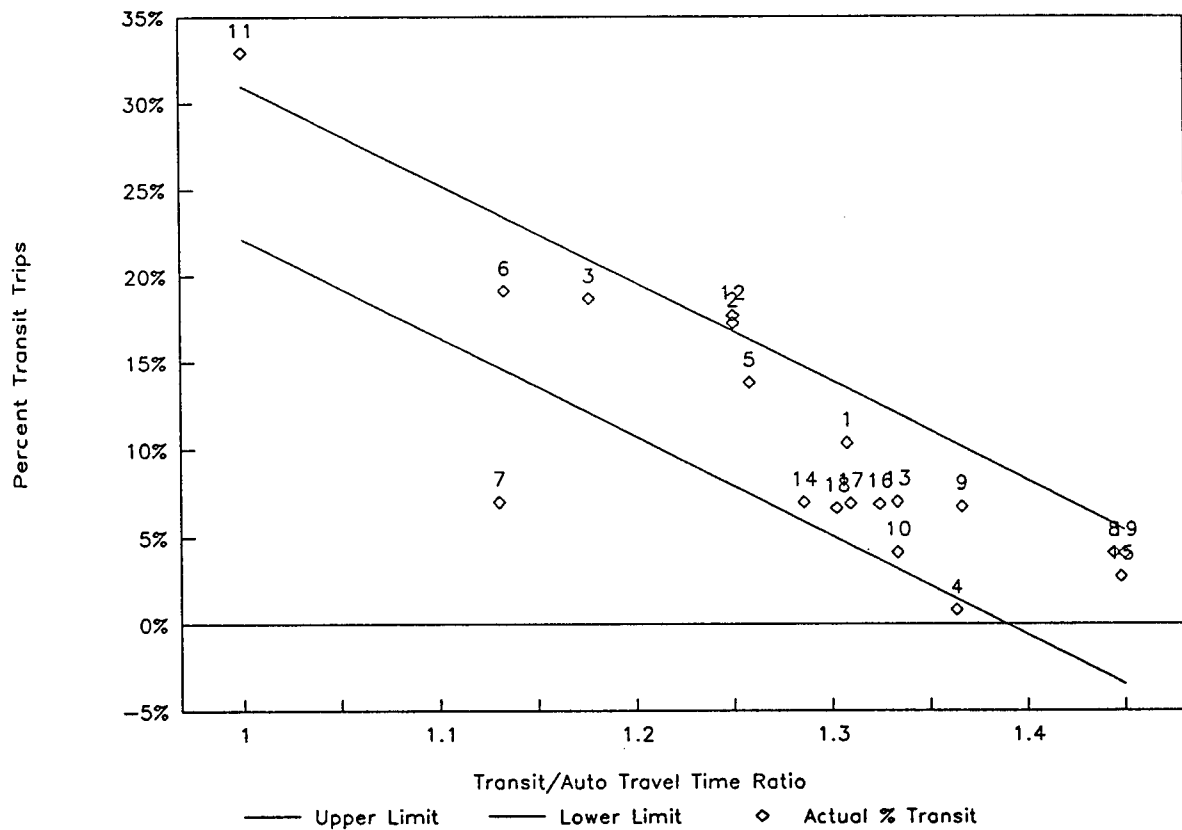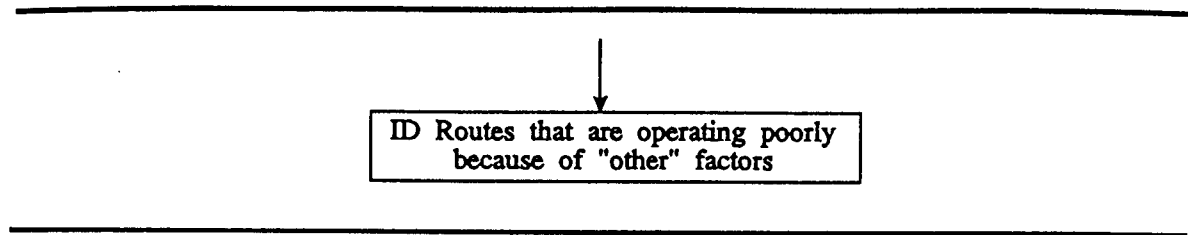
Questions to be answered:

1. Given the results from the last graph, which routes are operating much better than expected?

2. Which routes are operating much worse than expected?

3. What other factors would you look for when evaluating the routes that operate worse than expected?

Note: Many answers listed in this section are open to interpretation, and could be different given certain assumptions. These answers are to be used as a general guide.

CASE STUDY: <u>TRAVEL DEMAND CHARACTERISTICS BY URBAN AREA SIZE</u>

PREPARING FOR ANALYSIS:

1. Persons and Households
2. Place (city or town)
3. Travel characteristics, including mode share (percent who use transit), work trip rates per household, vehicle occupancy, travel times
4. CTPP Table A-1, Total Persons (Place of Residence, Statewide Element - Geographic level is "Place"), Table A-4, Total Households; Table C-1, Time Leaving Home to Go to Work by Means of Transportation; Table C-3, Workers per Vehicle; Table C-7, Mean Travel Time to Work by Means of Transportation.
5. Yes. The CTPP contains only Journey-to-Work trips; most travel forecasting models use Home-Based Work trips, which include the trip from work to home. You will need to calculate work trip rates per household and other data summaries because they are not directly provided in the CTPP.

Step 1.1	1.	CTPP tables containing 'persons' as the universe: A-1 Total Persons A-5 Persons by Origin by Race A-6 Persons by Sex by Age
	2.	Work trip rates per household - decrease Work trip lengths - increase Work trip vehicle occupancies - (increase if greater density) Percentage of work trips made by transit - increase Percentage of peak period trips - increase (due to peak spreading)
Step 2.1	1.	Cross tabulations include: Size of HH, No. of Workers in HH, Means of Transportation, Total/Peak Period, Median/Mean Income, etc.
	2.	611,310
Step 2.2	3.	Yes. The factor will likely decrease as an urban area's size increases, due to greater trip chaining and the increased potential for shift to transit.
	4.	1,106,471
Step 2.3	5.	Small town has the highest trip rate (2.70); River City has the lowest (1.98).
	6.	Yes. Dwelling unit type, automobile ownership, household income. CTPP Tables A-11, A-13, A-14, A-15, A-16, A-17, A-18 (the universe must be 'households')
Step 3.1	1.	Workers 16 years and over using a car, truck or van
	2.	1.26

| Step 3.2 | 3. | Bus/trolley bus, streetcar/trolley car, railroad, subway/elevated, ferry, taxi, motorcycle, bicycle, walked, worked at home, other. |
| | 4. | 2,987 |

| Step 3.3 | 5. | Subtract non-vehicle JTW trips from total JTW trips. |
| | 6. | 0.9 percent |

Step 4.1	1.	Workers 16 years and over who did not work at home
	2.	6:30 AM to 8:29 AM
	3.	A-31, Time Leaving Home to Go to Work; A-57; and B-18, Time of Arrival at Work by Means of Transportation
	4.	463,947
Step 4.2	5.	River City

Step 5	1.	Mean (or median) travel time. Median should be used when outliers (or unusually high or low data points) are likely to skew the results.
	2.	Actual travel times tend to be longer than perceived travel times, in part because some Census long form respondents may have identified in vehicle travel times rather than door-to-door travel times.
	3.	Daily = 11.7, Peak = 13.3

Step 6.4	1.	Trip rates decrease as population increases.
	2.	.988
	3.	Yes
	4.	.895
	5.	No
	6.	(a) .191
		(b) Yes. Two outliers tend to diffuse the scatterplot, making the relationship weaker
	7.	Yes. There may be "cut off" points in cities of this size for transit service.
	8.	.924
	9.	Yes
	10.	.851

| *Other Questions* | 1. | Compare vehicle occupancy factors, mode split and other travel demand parameters for reasonableness based on population. |
| | 2. | In most cases, yes. |

CASE STUDY: ASSESSING COMMUTER BUS SERVICE

PREPARING FOR ANALYSIS:

1. Workers 16 years and over who did not work at home
2. Traffic analysis zones (or census tract)
3. Transit route map and a TAZ map to identify the zones that comprise commuter route travel sheds and central business district TAZs.
4. Travel times by means of transportation. Other cross-tabulations that may be helpful would be number of workers per carpool and average vehicle occupancy.
5. CTPP Table 3-1, Time Leaving Home to Go to Work by Means of Transportation (Journey-to-Work, Urban Element - geographic summary level is Traffic Analysis Zones); Table 3-7, Mean Travel Time to Work in Minutes by Means of Transportation.

Step 2	1.	Travel sheds include all areas served by a single transit line. The transit system's route maps will indicate which areas are served by a bus route to the CBD. TAZs are then grouped to approximate the travel sheds.
Step 3	1.	CTPP Table 3-1, Time Leaving Home to Go to Work - Total and Peak Period - By Means of Transportation to Work
	2.	Total number of CBD trips = 102,999 Travel shed 13 generates the most trips (22,987)
	3.	CTPP Table 3-7, Mean Travel Time to Work (in Minutes) by Means of Transportation by Time Leaving Home to Go to Work - Total/Peak Period. Mean travel times should be used. Median travel times should be used when outliers (data not falling within expected ranges) are thought to skew results.
	4.	42 minutes; 606 minutes Weighted average is calculated by combining travel times with trips
	5.	Multiply trips time mean travel times
	6.	1,040,289 7.5 percent
Step 4	1.	Percent Vehicle Trips = Sum of all non-transit vehicle trips divided by total trips. Percent Transit Trips = Sum of all transit trips divided by total trips Sum of all non-transit person hour travel times divided by the sum of all non-transit vehicle trips. Sum of all transit person hour travel times divided by the sum of all transit trips. Travel time ratio is calculated by dividing average transit commuting time by average vehicle commuting time (in minutes).
	2.	Routes 8, 15 and 19.

Step 5   1.   Regression analysis provides a statistically accurate picture of the data, and identifies whether a relationship is likely to be true based on the variables.

2.   Independent variable = travel time ratio
Dependent variable = mode share

3. R^2 = .70; moderately strong

4.   Use the regression equation parameters multiplied by the travel time ratio to estimate ridership.

5.   Add the estimated transit percentage to the standard error for the upper limit, subtract for the lower limit.

Step 6   1.   Routes 11, 12, 2

2.   Routes 7 and 4

3.   Frequency of bus service, location of stops (walk distance), etc.

CHAPTER 3

CHECKING FOR REASONABLENESS

Introduction

When preparing to use the CTPP tabulations, be aware that you will need to make several checks of the data to assure its reasonableness before using it in an analysis. As with many data collection efforts, there are both sampling and non-sampling errors that could create problems if not detected early and recognized or corrected. This chapter begins with a discussion of how the CTPP should be reviewed to minimize such errors, and identifies some considerations that must be made before using the data for certain applications. The second part of the chapter identifies ways to access CTPP data and where to get help with Census questions and problems.

Types of Errors

Non-Sampling errors are due to mistakes made during data collection or processing at the Census Bureau. These may also be due to a general misinterpretation of questions by respondents. Probably the best-known non-sampling error associated with the 1990 Census was the reported under-counting of the population. The Census Bureau recognized that there would be certain groups that, for various reasons, would not respond to the Census questionnaire. As much as possible, the Census Bureau attempted to make contact with these groups, but problems were still evident. The Census Bureau also made a number of checks of the data once collected to assure the accuracy of the collection and processing effort.

Overall it is important to recognize that because of the enormity of the Census data, it is unlikely that all mistakes were caught and corrected before the data were summarized and tabulated. Furthermore, there may have been problems with how some of the questions were interpreted by respondents. An example would be the travel time estimates that were reported. These may be in error because of the differences between perceptions and reality, and could have been in error because respondents tend to report in-vehicle travel times instead of door-to-door travel times. The Census Bureau extensively pretests the survey forms prior to each Census and makes an attempt to eliminate the potential for misinterpretation. Nevertheless, for some of the more lengthy questions on the long form, misinterpretation could have occurred.

There is also the potential for **sampling errors** associated with long form responses. The long form was distributed to one in six households, on average, around the country. Because the long form was only completed by selected households, there is a probability that the long form sample does not reflect the population at large. This probability is known as sampling error. In Census publications, the standard error associated with each of the long form response tabulations is presented so that data users can estimate the confidence interval for long form estimates.

As an example, the total labor estimate for a place is reported to be 9,948. This estimate is based on occupation and employment questions asked on the Census long

form. Because the labor force questions were not asked of everyone, the results had to be factored to determine the total labor force within the place. This total estimate may or may not be an accurate representation of the true labor force within the place. To determine the probability that the estimated labor force total encompasses the true labor force total within the place, the confidence interval shall be used. (The confidence interval is determined by multiplying the standard error by the desired confidence level then adding and subtracting the results to or from the estimate.)

Thus, if users wanted to be 90 percent sure that the confidence interval (CI) enclosed the true population of a true labor force total, the following equation would be used:

179 X 1.645 = 294;   CI: 9,948 + 294 = 10,242,   9,948 - 294 = 9,654
(Where 179 is the standard error and 1.645 is the 90% confidence level factor)

Thus, we can be 90 percent assured that the true labor force in the place (estimated by the Census Bureau in this example as 9,948) is somewhere within that confidence interval.

Weighting

Weighting is used to factor Census long form results to 100 percent estimates. Recall the labor force estimate used in the previous section. That total estimate had to be factored from the one in six sample of the long form. The following steps were used by the Census Bureau to weight long form responses:

- areas were defined for the weighting process and sampling plans determined for each area;

- long form questionnaires were sent randomly to households within the area based on the sampling plan for that area;

- long form responses from the area were assigned an initial weight that is the inverse of the probability of being selected;

- the initial weight was adjusted using a ratio developed from household and person characteristics for that area based on 100 percent count information; and,

- final weights were assigned to each long form response.

The actual weighting process took into account a number of household and person characteristics, at several different levels, in order to make adjustments. CTPP users should note that the weighting and its assumptions can present problems, especially when dealing with Place of Work and JTW information. The possibility of mistakes in "geocoding" (or attaching an address response to a census-defined geography level) may further compound error in the CTPP. Place of Work and JTW tabulations must, therefore,

be checked carefully. For more detailed information about weighting procedures, refer to Appendix C of the STF-3A documentation provided by the Census Bureau.

Reasonableness Checks

Despite the probability of non-sampling errors associated with the Census data, no other data sources exceed the accuracy of the 100 percent short form responses by Place of Residence. In fact, Census Place of Residence information is typically used to check other data sources. The Place of Residence tabulations of long form responses are also very accurate because of the size of the sample. Seldom are local surveys conducted with a sample size larger than the long form sampling rate. As sample sizes increase, the magnitude of the sampling error decreases exponentially. In other words, the probability of selecting a sample that represents the entire population increases as the size of the sample increases. Therefore, it is unlikely that there will be substantial sampling errors associated with long form responses.

Where errors do occur in the CTPP, they will most likely be found in Place of Work and JTW tabulations. Errors here will usually be due to problems with geocoding addresses provided on the long form to Census geography. Such errors could be caused by respondents not providing accurate addresses, or by the inability of Census geocoders to accurately locate addresses. Again, if there are any geocoding errors evident, they will be compounded by the weighting used in adjusting long form responses to represent the total population.

When checking Census data, it is best to begin by conducting a series of internal checks. These checks could include comparing Place of Work totals with Census totals from other Census products. For example, Total Persons tabulated in the CTPP can be compared against total persons tabulated in one of the Census Bureau's other products, such as the STF-3A tables. If the totals in the CTPP and STF-3A tables are equal, then further checks of characteristics can also be made. For example, household sizes reported in the CTPP can be compared with those reported in the STF-3A. These internal checks should occur at the MSA level first, and then checks should be made at smaller geographic levels. If the CTPP tabulations do not equal those results found in the STF-3A at any level, you will then need to step back and try to determine why such differences exist.

Because the CTPP is the only Census product that provides Place of Work and JTW tabulations, you will not be able to make the same types of internal checks with these tabulations. To the extent possible, checks with other employment data sources will need to be made of work place tabulations. Moreover, travel demand data sources, such as travel diaries, etc., should be used to check JTW information.

Use of CTPP Data in Travel Demand Forecasting

Many users of the CTPP will be interested in its travel demand forecasting applications. In addition to using the socio-economic data (such as population by TAZ, dwelling units, household size, employment data and vehicles available) as inputs into the

modeling process, the CTPP JTW data can be used to check model output for reasonableness.

Usual and Average Day Conditions

Before conducting such modeling checks, the user should be cautioned that the Census reports travel in terms of usual day conditions, but that travel demand models typically produce output for average day conditions. Because of the wording of the Census JTW questions (Questions 22-24 in Appendix B), **the CTPP JTW data does not contain information about chained trips, mode shifts, absent workers or the trip from work to home,** these are all part of an "average" day of trip-making. On an average day, people get sick and stay home from work; cars won't start, so travelers shift modes; and people make intermediate stops to run errands. These travel nuances are not captured in the Census questionnaire, which asks only how travel was usually completed last week. In addition, the CTPP only contains information about the mode used for the longest segment of the trip to work (rather than all modes used in the trip to work), and information only for the job at which the respondent worked the most. Thus, second jobs are excluded. Furthermore, the Place of Work coding does not accurately account for those who have no fixed place of work, such as construction workers and some sales people. This suggests that the CTPP data needs to be converted from *usual day* to *average day* conditions.

Information needed to make the conversion from usual to average day conditions is typically taken from travel diary surveys and local data sources. Trip chaining, second jobs and mode shifts come from household travel surveys. Absentee factors and adjustments for those without a fixed workplace may come from local employment data or by checking with local employers. These conversions must take place before comparing CTPP JTW data with model estimated Home-Based Work trips.

The CTPP can be used to check model output at each step in the modeling process.

- Trip generation checks can be made by comparing the CTPP JTW data (after converting the data to average day conditions) with model generated Home-Based Work productions and attractions to identify discrepancies where more detailed analysis must take place.

- Trip distribution checks can be made by comparing Census-reported travel times for the JTW with model-produced work trip travel times and trip lengths, and by making trip table comparisons (as shown in **Exhibit 3-1**).

- Mode split comparisons can also be made by using the CTPP to identify transit dependent riders through tables on automobile availability, income levels, mobility limitation status and age.

- Sensitivity checks can also be made for those choice transit riders by using the CTPP to analyze automobile vs. transit travel times, departure times, worker density and occupation/class of worker. Again, it should be noted

that the CTPP JTW data will need to be converted into daily Home-Based Work data before these checks can be made.

TRIP TABLE CHECKS

GRAVITY MODEL RESULTS

	1	2	3	4	5	6	Total
1	43	465	123	247	187	199	1264
2	465	58	182	344	417	132	1598
3	123	182	63	119	274	150	911
4	247	344	119	77	510	306	1603
5	187	417	274	510	24	215	1627
6	199	132	150	306	215	17	1019
Total	1264	1598	911	1603	1627	1019	8022

CTPP RESULTS

	1	2	3	4	5	6	Total
1	52	410	157	263	201	157	1240
2	412	50	136	367	457	110	1582
3	112	197	68	136	251	103	867
4	210	357	162	100	477	272	1578
5	152	453	251	493	46	163	1558
6	132	101	152	253	187	23	848
Total	1070	1568	926	1612	1619	828	7673

PCT DIFFERENCE

	1	2	3	4	5	6	Total
1	-17	13	-22	-6	-7	27	2
2	13	16	34	-6	-9	20	1
3	10	-8	-7	-13	-9	46	5
4	18	-4	-27	-23	7	13	2
5	23	-8	9	3	-54	32	4
6	51	31	-1	21	15	-26	20
Total	18	-2	-2	-1	0	23	5

Exhibit 3-1

Exhibit 3-1 shows three trip tables; the first two tables (top and center) were created from a travel demand model and the CTPP, while the third (bottom) table summarizes differences between the first two tables. The left column and top row are the Traffic Analysis Zones for the urban area. The third trip table shows the percent difference between the two tables, allowing you to identify potential problem areas where your model and CTPP data do not correspond.

Using the CTPP Directly for Analysis

The conversions of Census JTW data mentioned above are not needed for all types of analysis. There are a number of cases in which transportation planners can take the data in CTPP tables for direct analysis of existing conditions. In this case, the CTPP provides a "snapshot" of conditions as they were in 1990, and can be used for comparison with other data sources collected more recently.

The reader should note that the **analysis universe** (e.g., the item being measured) must be contained in the CTPP before direct analysis can take place. For example, workers over age 16 is a universe in the CTPP, whereas Vehicle Miles of Travel (VMT) is not in the CTPP and cannot be measured using Census data. The universe for certain tables is shown in Appendix A. Typical universes in the CTPP are Persons, Households and Workers. In addition, the evaluation must be of **existing or near term conditions**. It is not possible to use the CTPP to directly analyze travel modes that do not currently exist in the study area, or to analyze future year estimates of travel conditions. For example, it is possible to analyze existing commuter bus service because commuters are

a universe in the CTPP (workers age 16 and over), the travel mode being measured is one of the cross tabulations in the CTPP JTW tables, and existing bus service (if available) could have been a mode taken in 1990. It would not be possible, however, to use the CTPP to directly analyze travel times to a *proposed* suburban employment center development on a *proposed* light rail line.

Information obtained from the long form and contained in the CTPP can be used to update model parameters, such as automobile occupancies and mode split relationships. Underlying trends (trip lengths, household size, and vehicles available) can also be evaluated. Additionally, CTPP data taken from the short form questionnaire includes total counts of the commuter market and the socio-economic information surrounding these counts; as information for 100% of the population, this data can be very valuable in doing accurate, direct analysis.

Applications for which the CTPP JTW data can be used directly for analysis include such situations as: assessing the impacts of a plant relocation; assessing the potential of car- and van-pool programs; evaluating the effectiveness of commuter bus service; and analyzing tax incentives for commuters to shift modes. Other options are certainly possible as long as the universe is contained in the CTPP and the existing or near term condition is being measured.

Accessing the CTPP

The Federal Bureau of Transportation Statistics (BTS) at the U.S. Department of Transportation has released Statewide Parts A, B and C of the CTPP on CD-ROM. An ASCII data dump of the Urban Element Parts 1, 2 and 3 has also been released to state DOTs on CD-ROM. The CD-ROM itself does not include any software to process or analyze the data. However, you can use any number of programming languages like Basic, C, Fortran or SAS to process the data. CD-ROM versions of the Urban Element Parts 1, 2 and 3, will be released in the future.

Software

The CTPP, even for the smallest of states and urban areas, is a formidable collection of tables that will push most personal computers to their limits. Therefore, special considerations have been made for users who do not have access to a mainframe computer and wish to manipulate CTPP information with personal computers. Because of the number of cross-tabulations associated with each table and the size of the geographic areas of analysis, many tables have well over 100 data cells. Moreover, most spreadsheet, database and statistical software are limited to reading only 250 fields of data, and are not able to import and read the larger CTPP tables. To help users mitigate these issues and make effective use of the CTPP, special software has been created.

BTS is distributing software that will make extracting and formatting the CTPP tables considerably easier. The software, called TransVU-CTPP, has been sent to state Departments of Transportation as part of the Statewide CD-ROM version of the CTPP. TransVU is in the public domain. It is browse and extraction software for use with Microsoft Windows, and is designed to display geographic data and export the data in

common personal computer formats. TransVU displays the available CTPP tables on one side of the screen with maps on the other side, showing state and county boundaries, place names, major roads and other geographic features. Users will be able to query and extract the CTPP data through the map displays. Although TransVU is not mapping software in the manner of a Geographic Information System and other software products, users will be able to create rough thematic maps from the CTPP data.

Exhibit 3-2 shows a screen from TransVU that illustrates how the information is organized. The exhibit shows the counties in the state of Delaware on the right-hand side, and Table A-7, Sex by Employment Status, in spreadsheet format on the left side. The highlighted column shows the total employment, including both sexes, for Kent County. You can use the cursor or mouse to maneuver between data rows and columns. A series of icons for different functions runs across the top of the screen. Once you display the data, you may export the data in the table so that it can be manipulated in a variety of spreadsheet or database software packages.
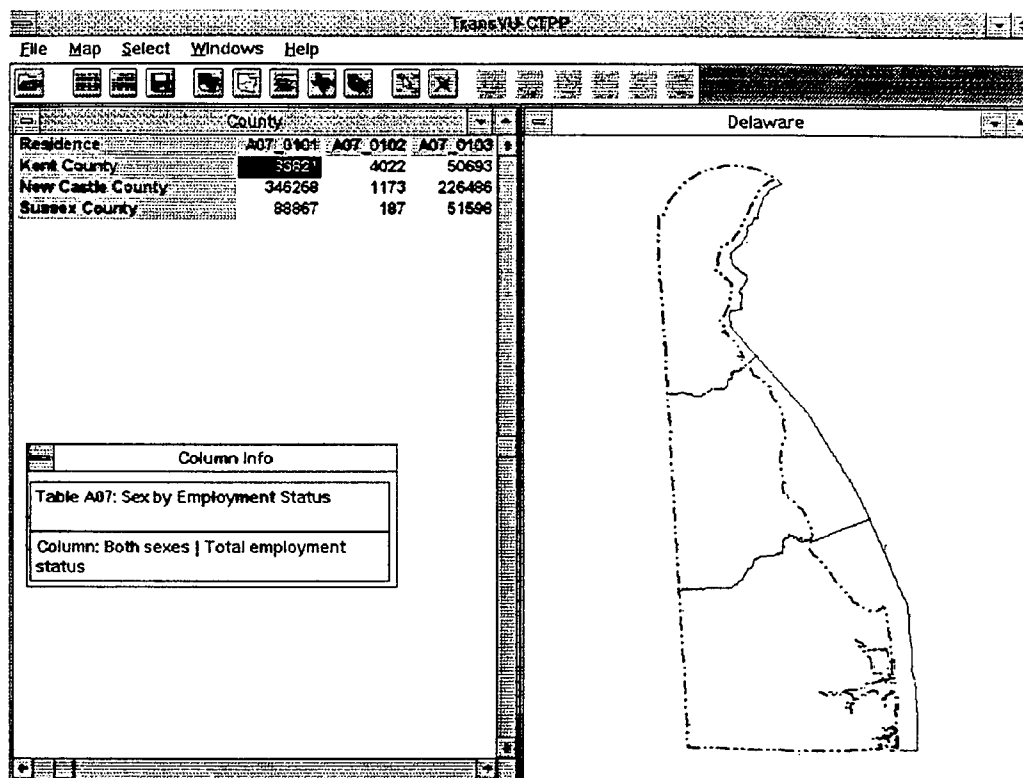
Exhibit 3-2

TransVU runs under Microsoft Windows version 3.1, and includes an install program. Hardware needs for TransVU require, at a minimum, a personal computer running on an Intel 80386 chip or better, 4 MB of RAM, a hard disk and a CD-ROM drive. Performance will depend on how many files the user moves from the CD-ROM to the hard disk with the TransVU install program.

Instructions and a detailed discussion of the applications of TransVU are beyond the scope of this handbook. The software is fairly self-explanatory, with a detailed help feature. However, it is important to note that the software enables you to examine specific

CTPP tables and export the data into spreadsheet format, as well as perform various types of analyses by selecting elements of the data in which you are most interested. For example, TransVU allows you to search for those counties or cities (if any) in which the total number of households with two or more workers and having no vehicles available exceeds 1,000. You can obtain a copy of TransVU by calling the transportation data center for your state or the Bureau of Transportation Statistics at 1-202-366-DATA. An updated version of TransVU for the CTPP Urban Element is under development and will be released in the future.

BTS Technical Assistance

U.S. DOT has contracted with JHK & Associates to provide additional technical assistance for the CTPP Urban Element. The technical assistance available covers transportation planning applications of Urban Element data. You may contact JHK directly at **(407) 422-8813**, to obtain more information about this program.

CTPP Telephone Assistance and Electronic Bulletin Board System

The Census Bureau and U.S. DOT have joined to create an Electronic Bulletin Board System (EBB) to answer questions about CTPP availability and applications, and to serve as a message and file transfer system. Staff are available during normal business hours to field questions and provide information about the CTPP at **(301) 457-2454**. Callers may leave a message after hours.

Those who have access to a computer and modem may call the **Census Bureau EBB at (301) 763-7554**. It provides users with an opportunity to correspond with U.S. DOT and Census Bureau technical staff and others about the applications of the CTPP. The EBB also allows users to upload and download files for use in processing or analyzing Census data. A menu system is provided to navigate through the system into different message and file areas with instructions provided for file transfers. There are also a number of software programs available that allow you to access the CTPP tables. The EBB is an excellent resource for posting questions and answers about the CTPP and other Census products, or software packages that can be purchased to extract CTPP data. Several files are available for downloading from the EBB, including SAS code for CTPP data processing, and a list of MPO and state DOT contacts for distribution of CTPP packages.

For more information about these and other CTPP services, contact the FHWA Planning Support Branch at (202) 366-0182.

1990 CENSUS TRANSPORTATION PLANNING PACKAGE

TABLE OUTLINES

STATEWIDE ELEMENT

PARTS A, B and C

and

URBAN ELEMENT

PARTS 1, 2 AND 3

1990 CTPP TABLE OUTLINES

Urban Element
Part 1—Tabulations by Area of Residence

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
1-1.	N/A	TOTAL PERSONS(1)	1
		Universe: Persons	
		Total	
1-2.	N/A	UNWEIGHTED SAMPLE COUNT OF PERSONS(1)	1
		Universe: Persons	
		Total	
1-3.	N/A	PERCENT OF PERSONS IN SAMPLE(1)	1
		Universe: Persons	
		Total	
1-4.	N/A	TOTAL HOUSEHOLDS(1)	1
		Universe: Households	
		Total	

1-5. I-4   HISPANIC ORIGIN(3) BY RACE(4) 12
Universe: Persons
Total, Hispanic origin:
    All races
    White
    Black
    Other
Not of Hispanic origin:
    (Repeat RACE)
Hispanic origin:
    (Repeat RACE)

1-6. I-3   SEX(3) BY AGE(12) 36
Universe: Persons
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years

62 to 64 years
65 to 74 years
75 years and over
Male:
    (Repeat AGE)
Female:
    (Repeat AGE)

1-7. N/A   SEX(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
Both sexes:
    Total, employment status
    In labor force:
        In Armed Forces
        Civilian:
            Employed:
                At work
                Not at work
            Unemployed
    Not in labor force
Male:
    (Repeat EMPLOYMENT STATUS)
Female:
    (Repeat EMPLOYMENT STATUS)

1-8. I-5   SCHOOL ENROLLMENT(6) BY AGE(8) 48
Universe: Persons 3 years and over
Total, school enrollment:
    Persons 3 years and over
    3 and 4 years
    5 years
    6 to 11 years
    12 to 17 years
    18 to 64 years
    65 to 74 years
    75 years and over
Enrolled:
    In nursery school or kindergarten:
        (Repeat AGE)
    In grade 1 to 9:
        (Repeat AGE)
    In grade 10 to 12:
        (Repeat AGE)
    In college:
        (Repeat AGE)
Not enrolled:
    (Repeat AGE)

1-9. N/A   MOBILITY LIMITATION STATUS(3) BY AGE(11) 33
Universe: Persons 16 years and over

Total, mobility limitation status:
    Persons 16 years and over
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years
    65 to 74 years
    75 years and over
With a mobility limitation:
    (Repeat AGE)
No mobility limitation:
    (Repeat AGE)

1-10. N/A   MOBILITY LIMITATION STATUS(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
Total, mobility limitation status:
    Total, employment status
    In labor force:
        In Armed Forces
        Civilian:
            Employed:
                At work
                Not at work
            Unemployed
    Not in labor force
With a mobility limitation:
    (Repeat EMPLOYMENT STATUS)
No mobility limitation:
    (Repeat EMPLOYMENT STATUS)

1-11. I-1   SEX(3) BY AGE(12) FOR PERSONS IN HOUSEHOLDS 36
Universe: Persons in households
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years
    65 to 74 years
    75 years and over
Male:

1990 CTPP TABLE OUTLINES

Statewide Element
Part A—Tabulations by Area of Residence

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
A-1.	N/A	TOTAL PERSONS(1)	1

Universe: Persons
Total

A-2.	N/A	UNWEIGHTED SAMPLE COUNT OF PERSONS(1)	1

Universe: Persons
Total

A-3.	N/A	PERCENT OF PERSONS IN SAMPLE(1)	1

Universe: Persons
Total

A-4.	N/A	TOTAL HOUSEHOLDS(1)	1

Universe: Households
Total

A-5.	I-4	HISPANIC ORIGIN(3) BY RACE(4)	12

Universe: Persons
Total, Hispanic origin:
    All races
    White
    Black
    Other
Not of Hispanic origin:
    (Repeat RACE)
Hispanic origin:
    (Repeat RACE)

A-6.	I-3	SEX(3) BY AGE(12)	36

Universe: Persons
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years

         62 to 64 years
         65 to 74 years
         75 years and over
    Male:
         (Repeat AGE)
    Female:
         (Repeat AGE)

A-7. N/A   SEX(3) BY EMPLOYMENT STATUS(6) 1 8
Universe: Persons 16 years and over
Both sexes:
    Total, employment status
    In labor force:
        In Armed Forces
        Civilian:
            Employed:
                At work
                Not at work
            Unemployed
    Not in labor force
Male:
    (Repeat EMPLOYMENT STATUS)
Female:
    (Repeat EMPLOYMENT STATUS)

A-8. I - 5   SCHOOL ENROLLMENT(6) BY AGE(8) 4 8
Universe: Persons 3 years and over
Total, school enrollment:
        Persons 3 years and over
        3 and 4 years
        5 years
        6 to 11 years
        12 to 17 years
        18 to 64 years
        65 to 74 years
        75 years and over
Enrolled:
    In nursery school or kindergarten:
        (Repeat AGE)
    In grade 1 to 9:
        (Repeat AGE)
    In grade 10 to 12:
        (Repeat AGE)
    In college:
        (Repeat AGE)
Not enrolled:
    (Repeat AGE)

A-9. N/A MOBILITY LIMITATION STATUS(3) BY AGE(11) 33
Universe: Persons 16 years and over
Total, mobility limitation status:
    Persons 16 years and over
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years
    65 to 74 years
    75 years and over
With a mobility limitation:
    (Repeat AGE)
No mobility limitation:
    (Repeat AGE)

A-10. N/A MOBILITY LIMITATION STATUS(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
Total, mobility limitation status:
    Total, employment status
    In labor force:
        In Armed Forces
        Civilian:
            Employed:
                At work
                Not at work
            Unemployed
    Not in labor force
With a mobility limitation:
    (Repeat EMPLOYMENT STATUS)
No mobility limitation:
    (Repeat EMPLOYMENT STATUS)

A-11. I-1 SEX(3) BY AGE(12) FOR PERSONS IN HOUSEHOLDS 36
Universe: Persons in households
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years

        65 to 74 years
        75 years and over
Male:
        (Repeat AGE)
Female:
        (Repeat AGE)

A-12. I-2   SEX(3) BY AGE(12) FOR PERSONS IN GROUP QUARTERS 36
Universe: Persons in group quarters
Both sexes:
        All ages
        Under 16 years
        16 and 17 years
        18 to 20 years
        21 to 24 years
        25 to 34 years
        35 to 44 years
        45 to 54 years
        55 to 61 years
        62 to 64 years
        65 to 74 years
        75 years and over
Male:
        (Repeat AGE
Female:
        (Repeat AGE)

A-13. N/A   HOUSEHOLD SIZE(5) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 30
Universe: Households
All households:
        Total, number of workers in household
        No workers in household
        1 worker in household
        2 workers in household
        3 workers in household
        4 or more workers in household
1-person households:
        (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
2-person households:
        (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
3-person households:
        (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
4-or-more-person person households:
        (Repeat NUMBER OF WORKERS IN HOUSEHOLD)

A-14. N/A   NUMBER OF WORKERS IN HOUSEHOLD(6) BY HOUSEHOLD INCOME IN 1989(26). . .156
Universe: Households
All households:
        Total, household income
        Less than $5,000

$5,000 to $9,999
$10,000 to $12,499
$12,500 to $14,999
$15,000 to $17,499
$17,500 to $19,999
$20,000 to $22,499
$22,500 to $24,999
$25,000 to $27,499
$27,500 to $29,999
$30,000 to $32,499
$32,500 to $34,999
$35,000 to $37,499
$37,500 to $39,999
$40,000 to $42,499
$42,500 to $44,999
$45,000 to $47,499
$47,500 to $49,999
$50,000 to $54,999
$55,000 to $59,999
$60,000 to $74,999
$75,000 to $99,999
$100,000 to $124,999
$125,000 to $149,999
$150,000 or more
No workers in household:
    (Repeat HOUSEHOLD INCOME)
1 worker in household:
    (Repeat HOUSEHOLD INCOME)
2 workers in household:
    (Repeat HOUSEHOLD INCOME)
3 workers in household:
    (Repeat HOUSEHOLD INCOME)
4 or more workers in household:
    (Repeat HOUSEHOLD INCOME)

A-15. N/A   MEDIAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN
HOUSEHOLD(6) 6
Universe: Households
Total
No workers in household
1 worker in household
2 workers in household
3 workers in household
4 or more workers in household

A-16. N/A   MEAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN
HOUSEHOLD(6) 6
Universe: Households
Total
No workers in household

1 worker in household
2 workers in household
3 workers in household
4 or more workers in household

A-17. N/A   HOUSEHOLD SIZE(5) BY VEHICLES AVAILABLE(9) 45
Universe: Households
All households:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles
    4 vehicles
    5 vehicles
    6 vehicles
    7 or more vehicles
1 person in household:
    (Repeat VEHICLES AVAILABLE)
2 persons in household:
    (Repeat VEHICLES AVAILABLE)
3 persons in household:
    (Repeat VEHICLES AVAILABLE)
4 or more persons in household:
    (Repeat VEHICLES AVAILABLE)

A-18. N/A   NUMBER OF WORKERS IN HOUSEHOLD(6) BY VEHICLES AVAILABLE(9) 54
Universe: Households
All households:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles
    4 vehicles
    5 vehicles
    6 vehicles
    7 or more vehicles
No workers:
    (Repeat VEHICLES AVAILABLE)
1 worker:
    (Repeat VEHICLES AVAILABLE)
2 workers:
    (Repeat VEHICLES AVAILABLE)
3 workers:
    (Repeat VEHICLES AVAILABLE)
4 or more workers:
    (Repeat VEHICLES AVAILABLE)

A-19. N/A   NUMBER OF PERSONS 16 YEARS AND OVER IN HOUSEHOLD(5) BY VEHICLES
AVAILABLE(9) 45
Universe: Households with at least one person 16 years and over
All households:
> Total, vehicles available
> No vehicles
> 1 vehicle
> 2 vehicles
> 3 vehicles
> 4 vehicles
> 5 vehicles
> 6 vehicles
> 7 or more vehicles

1 person 16 and over:
> (Repeat VEHICLES AVAILABLE)

2 persons 16 and over:
> (Repeat VEHICLES AVAILABLE)

3 persons 16 and over:
> (Repeat VEHICLES AVAILABLE)

4 or more persons 16 and over:
> (Repeat VEHICLES AVAILABLE)

A-20. N/A   VEHICLES AVAILABLE(9) BY HOUSEHOLD INCOME IN 1989(26) 234
Universe: Households
Total, vehicles available:
> All incomes
> Less than $5,000
> $5,000 to $9,999
> $10,000 to $12,499
> $12,500 to $14,999
> $15,000 to $17,499
> $17,500 to $19,999
> $20,000 to $22,499
> $22,500 to $24,999
> $25,000 to $27,499
> $27,500 to $29,999
> $30,000 to $32,499
> $32,500 to $34,999
> $35,000 to $37,499
> $37,500 to $39,999
> $40,000 to $42,499
> $42,500 to $44,999
> $45,000 to $47,499
> $47,500 to $49,999
> $50,000 to $54,999
> $55,000 to $59,999
> $60,000 to $74,999
> $75,000 to $99,999
> $100,000 to $124,999

$125,000 to $149,999
$150,000 or more
No vehicles:
    (Repeat HOUSEHOLD INCOME)
1 vehicle:
    (Repeat HOUSEHOLD INCOME)
2 vehicles:
    (Repeat HOUSEHOLD INCOME)
3 vehicles:
    (Repeat HOUSEHOLD INCOME)
4 vehicles:
    (Repeat HOUSEHOLD INCOME)
5 vehicles:
    (Repeat HOUSEHOLD INCOME)
6 vehicles:
    (Repeat HOUSEHOLD INCOME)
7 or more vehicles:
    (Repeat HOUSEHOLD INCOME)

A-21. N/A   MEDIAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) 9
Universe: Households
Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

A-22. N/A   MEAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9) 9
Universe: Households
Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

A-23. N/A   UNITS IN STRUCTURE(7) BY VEHICLES AVAILABLE(9) 63
Universe: Households
Total, units in structure:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles

3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles
1 unit, detached:
    (Repeat VEHICLES AVAILABLE)
1 unit, attached:
    (Repeat VEHICLES AVAILABLE)
2 to 4 units:
    (Repeat VEHICLES AVAILABLE)
5 or more units:
    (Repeat VEHICLES AVAILABLE)
Mobile home or trailer:
    (Repeat VEHICLES AVAILABLE)
Other:
    (Repeat VEHICLES AVAILABLE)

A-24. I-25   HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11). . 132
Universe: Workers 16 years and over
Total, Hispanic origin:
    All races:
        All means of transportation
        Drove alone
        In 2-person carpool
        In 3-person carpool
        In 4-or-more-person carpool
        Bus or trolley bus
        Streetcar, trolley car, subway, or elevated
        Railroad
        Bicycle or walked
        Taxicab, ferryboat, motorcycle, or other means
        Worked at home
    White:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Black:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Other:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
Not of Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)
Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

A-25. I-6   SEX(3) BY OCCUPATION(15) FOR WORKERS 45
Universe: Workers 16 years and over
Both sexes:
    All occupations
    Executive, administrative, and managerial occupations (000-042)
    Professional specialty occupations (043-202)

Technicians and related support occupations (203-242)
Sales occupations (243-302)
Administrative support occupations, including clerical (303-402)
Private household occupations (403-412)
Protective service occupations (413-432)
Service occupations, except protective and household (433-472)
Farming, forestry, and fishing occupations (473-502)
Precision production, craft, and repair occupations (503-702)
Machine operators, assemblers, and inspectors (703-802)
Transportation and material moving occupations (803-863)
Handlers, equipment cleaners, helpers, and laborers (864-902)
Armed Forces
Male:
(Repeat OCCUPATION)
Female:
(Repeat OCCUPATION)

A-26. I-7   SEX(3) BY INDUSTRY(19) FOR WORKERS 57
Universe: Workers 16 years and over
Both sexes:
All industries
Agriculture, forestry, and fisheries (000-039)
Mining (040-059)
Construction (060-099)
Manufacturing, nondurable goods (100-229)
Manufacturing, durable goods (230-399)
Transportation (400-439)
Communications and other public utilities (440-499)
Wholesale trade (500-579)
Retail trade (580-699)
Finance, insurance, and real estate (700-720)
Business and repair services (721-760)
Personal services (761-799)
Entertainment and recreation services (800-811)
Health services (812-840)
Educational services (842-860)
Other professional and related services (841, 861-899)
Public administration (900-939)
Armed Forces (940-960)
Male:
(Repeat INDUSTRY)
Female:
(Repeat INDUSTRY)

A-27. I-8   SEX(3) BY CLASS OF WORKER(8) FOR WORKERS 24
Universe: Workers 16 years and over
Both sexes:
Total, class of worker
Private for profit wage and salary workers
Private not-for-profit wage and salary workers

Local government workers
State government workers
Federal government workers
Self-employed workers
Unpaid family workers
Male:
    (Repeat CLASS OF WORKER)
Female:
    (Repeat CLASS OF WORKER)

A-28. N/A   SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) FOR WORKERS 18
        Universe: Workers 16 years and over
        Both sexes:
            Total, number of hours worked last week
            Less than 15 hours
            15 to 20 hours
            21 to 34 hours
            35 to 40 hours
            Over 40 hours
        Male:
            (Repeat NUMBER OF HOURS WORKED LAST WEEK)
        Female:
            (Repeat NUMBER OF HOURS WORKED LAST WEEK)

A-29. N/A   SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33
        Universe: Workers 16 years and over
        Both sexes:
            All means of transportation
            Drove alone
            In 2-person carpool
            In 3-person carpool
            In 4-or-more-person carpool
            Bus or trolley bus
            Streetcar, trolley car, subway, or elevated
            Railroad
            Bicycle or walked
            Taxicab, ferryboat, motorcycle, or other means
            Worked at home
        Male:
            (Repeat MEANS OF TRANSPORTATION TO WORK)
        Female:
            (Repeat MEANS OF TRANSPORTATION TO WORK)

A-30. I-18   MEANS OF TRANSPORTATION TO WORK(20) 20
        Universe: Workers 16 years and over
        Total
        Drove alone
        In 2-person carpool
        In 3-person carpool
        In 4-person carpool

In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Worked at home

A-31. N/A   TIME LEAVING HOME TO GO TO WORK(39) 39
Universe: Workers 16 years and over who did not work at home
Total
5:00 a.m. to 5:14 a.m.
5:15 a.m. to 5:29 a.m.
5:30 a.m. to 5:44 a.m.
5:45 a.m. to 5:59 a.m.
6:00 a.m. to 6:14 a.m.
6:15 a.m. to 6:29 a.m.
6:30 a.m. to 6:44 a.m.
6:45 a.m. to 6:59 a.m.
7:00 a.m. to 7:14 a.m.
7:15 a.m. to 7:29 a.m.
7:30 a.m. to 7:44 a.m.
7:45 a.m. to 7:59 a.m.
8:00 a.m. to 8:14 a.m.
8:15 a.m. to 8:29 a.m.
8:30 a.m. to 8:44 a.m.
8:45 a.m. to 8:59 a.m.
9:00 a.m. to 9:14 a.m.
9:15 a.m. to 9:29 a.m.
9:30 a.m. to 9:44 a.m.
9:45 a.m. to 9:59 a.m.
10:00 a.m. to 10:14 a.m.
10:15 a.m. to 10:29 a.m.
10:30 a.m. to 10:44 a.m.
10:45 a.m. to 10:59 a.m.
11:00 a.m. to 11:59 a.m.
12:00 p.m. to 12:59 p.m.
1:00 p.m. to 1:59 p.m.
2:00 p.m. to 2:59 p.m.
3:00 p.m. to 3:59 p.m.
4:00 p.m. to 4:59 p.m.
5:00 p.m. to 5:59 p.m.

6:00 p.m. to 6:59 p.m.
7:00 p.m. to 7:59 p.m.
8:00 p.m. to 8:59 p.m.
9:00 p.m. to 9:59 p.m.
10:00 p.m. to 10:59 p.m.
11:00 p.m. to 11:59 p.m.
12:00 a.m. to 4:59 a.m.

A-32. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION TO WORK(11) 66
Universe: Workers 16 years and over
Total, number of hours worked last week:
  All means of transportation
  Drove alone
  In 2-person carpool
  In 3-person carpool
  In 4-or-more-person carpool
  Bus or trolley bus
  Streetcar, trolley car, subway, or elevated
  Railroad
  Bicycle or walked
  Taxicab, ferryboat, motorcycle, or other means
  Worked at home
Less than 15 hours:
  (Repeat MEANS OF TRANSPORTATION TO WORK)
15 to 20 hours:
  (Repeat MEANS OF TRANSPORTATION TO WORK)
21 to 34 hours:
  (Repeat MEANS OF TRANSPORTATION TO WORK)
35 to 40 hours:
  (Repeat MEANS OF TRANSPORTATION TO WORK)
Over 40 hours:
  (Repeat MEANS OF TRANSPORTATION TO WORK)

A-33. I-23 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11) 132
Universe: Workers 16 years and over
With earnings:
  All means of transportation
  Drove alone
  In 2-person carpool
  In 3-person carpool
  In 4-or-more-person carpool
  Bus or trolley bus
  Streetcar, trolley car, subway, or elevated
  Railroad
  Bicycle or walked
  Taxicab, ferryboat, motorcycle, or other means
  Worked at home
Less than $5,000 or loss:
  (Repeat MEANS OF TRANSPORTATION)

$5,000 to $9,999:
   (Repeat MEANS OF TRANSPORTATION)
$10,000 to $14,999:
   (Repeat MEANS OF TRANSPORTATION)
$15,000 to $19,999:
   (Repeat MEANS OF TRANSPORTATION)
$20,000 to $24,999:
   (Repeat MEANS OF TRANSPORTATION)
$25,000 to $29,999:
   (Repeat MEANS OF TRANSPORTATION)
$30,000 to $34,999:
   (Repeat MEANS OF TRANSPORTATION)
$35,000 to $49,999:
   (Repeat MEANS OF TRANSPORTATION)
$50,000 to $74,999:
   (Repeat MEANS OF TRANSPORTATION)
$75,000 or more:
   (Repeat MEANS OF TRANSPORTATION)
No earnings:
(Repeat MEANS OF TRANSPORTATION)

A-34. I-23   MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
               Universe: Workers 16 years and over with earnings
               Total
               Drove alone
               In 2-person carpool
               In 3-person carpool
               In 4-or-more-person carpool
               Bus or trolley bus
               Streetcar, trolley car, subway, or elevated
               Railroad
               Bicycle or walked
               Taxicab, ferryboat, motorcycle, or other means
               Worked at home

A-35. I-23   MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
               Universe: Workers 16 years and over with earnings
               Total
               Drove alone
               In 2-person carpool
               In 3-person carpool
               In 4-or-more-person carpool
               Bus or trolley bus
               Streetcar, trolley car, subway, or elevated
               Railroad
               Bicycle or walked
               Taxicab, ferryboat, motorcycle, or other means
               Worked at home

A-36. N/A   TIME LEAVING HOME TO GO TO WORK(7) BY MEANS OF TRANSPORTATION(10) ... 70
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
     All workers who did not work at home
     Drove alone
     In 2-person carpool
     In 3-person carpool
     In 4-or-more-person carpool
     Bus or trolley bus
     Streetcar, trolley car, subway, or elevated
     Railroad
     Bicycle or walked
     Taxicab, ferryboat, motorcycle, or other means
5:30 a.m. to 6:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
6:30 a.m. to 7:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
7:30 a.m. to 8:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
8:30 a.m. to 9:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
9:30 a.m. to 10:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
10:30 a.m. to 5:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)

A-37. N/A   MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 160
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
     All travel times
     Less than 5 minutes
     5 to 9 minutes
     10 to 14 minutes
     15 to 19 minutes
     20 to 24 minutes
     25 to 29 minutes
     30 to 34 minutes
     35 to 39 minutes
     40 to 44 minutes
     45 to 49 minutes
     50 to 54 minutes
     55 to 59 minutes
     60 to 74 minutes
     75 to 89 minutes
     90 minutes or more
Drove alone:
     (Repeat TRAVEL TIME TO WORK)
In 2-person carpool:
     (Repeat TRAVEL TIME TO WORK)

In 3-person carpool:
 (Repeat TRAVEL TIME TO WORK)
In 4-or-more-person carpool:
 (Repeat TRAVEL TIME TO WORK)
Bus or trolley bus:
 (Repeat TRAVEL TIME TO WORK)
Streetcar, trolley car, subway, or elevated:
 (Repeat TRAVEL TIME TO WORK)
Railroad:
 (Repeat TRAVEL TIME TO WORK)
Bicycle or walked:
 (Repeat TRAVEL TIME TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
 (Repeat TRAVEL TIME TO WORK)

A-38. N/A MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
      TRANSPORTATION(10) 10
      Universe: Workers 16 years and over who did not work at home
      Total
      Drove alone
      In 2-person carpool
      In 3-person carpool
      In 4-or-more-person carpool
      Bus or trolley bus
      Streetcar, trolley car, subway, or elevated
      Railroad
      Bicycle or walked
      Taxicab, ferryboat, motorcycle, or other means

A-39. N/A MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
      TRANSPORTATION(10) 10
      Universe: Workers 16 years and over who did not work at home
      Total
      Drove alone
      In 2-person carpool
      In 3-person carpool
      In 4-or-more-person carpool
      Bus or trolley bus
      Streetcar, trolley car, subway, or elevated
      Railroad
      Bicycle or walked
      Taxicab, ferryboat, motorcycle, or other means

A-40. N/A AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1
      Universe:Workers 16 years and over using a car, truck, or van
      Total

A-41. I-21 WORKERS PER VEHICLE(1) 1
      Universe: Workers 16 years and over using a car, truck, or van
      Total

A-42. N/A   AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) 1
                 Universe: Workers 16 years and over in a carpool
                 Total

A-43. I-22   WORKERS PER CARPOOL(1) 1
                 Universe: Workers 16 years and over in a carpool
                 Total

A-44. N/A   MOBILITY LIMITATION STATUS(3) BY MEANS OF TRANSPORTATION TO WORK(11). . 33
                 Universe: Workers 16 years and over
                 Total, mobility limitation status:
                       All means of transportation
                       Drove alone
                       In 2-person carpool
                       In 3-person carpool
                       In 4-or-more-person carpool
                       Bus or trolley bus
                       Streetcar, trolley car, subway, or elevated
                       Railroad
                       Bicycle or walked
                       Taxicab, ferryboat, motorcycle, or other means
                       Worked at home
                 With a mobility limitation:
                       (Repeat MEANS OF TRANSPORTATION)
                 No mobility limitation:
                       (Repeat MEANS OF TRANSPORTATION)

A-45. I-24   HOUSEHOLD INCOME IN 1989(26) BY MEANS OF TRANSPORTATION TO
                 WORK(11) FOR WORKERS IN HOUSEHOLDS 286
                 Universe: Workers 16 years and over in households
                 Total, household income for workers in households:
                       All means of transportation
                       Drove alone
                       In 2-person carpool
                       In 3-person carpool
                       In 4-or-more-person carpool
                       Bus or trolley bus
                       Streetcar, trolley car, subway, or elevated
                       Railroad
                       Bicycle or walked
                       Taxicab, ferryboat, motorcycle, or other means
                       Worked at home
                 Less than $5,000:
                       (Repeat MEANS OF TRANSPORTATION)
                 $5,000 to $9,999:
                       (Repeat MEANS OF TRANSPORTATION)
                 $10,000 to $12,499:
                       (Repeat MEANS OF TRANSPORTATION)

$12,500 to $14,999:
    (Repeat MEANS OF TRANSPORTATION)
$15,000 to $17,499:
    (Repeat MEANS OF TRANSPORTATION)
$17,500 to $19,999:
    (Repeat MEANS OF TRANSPORTATION)
$20,000 to $22,499:
    (Repeat MEANS OF TRANSPORTATION)
$22,500 to $24,999:
    (Repeat MEANS OF TRANSPORTATION)
$25,000 to $27,499:
    (Repeat MEANS OF TRANSPORTATION)
$27,500 to $29,999:
    (Repeat MEANS OF TRANSPORTATION)
$30,000 to $32,499:
    (Repeat MEANS OF TRANSPORTATION)
$32,500 to $34,999:
    (Repeat MEANS OF TRANSPORTATION)
$35,000 to $37,499:
    (Repeat MEANS OF TRANSPORTATION)
$37,500 to $39,999:
    (Repeat MEANS OF TRANSPORTATION)
$40,000 to $42,499:
    (Repeat MEANS OF TRANSPORTATION)
$42,500 to $44,999:
    (Repeat MEANS OF TRANSPORTATION)
$45,000 to $47,499:
    (Repeat MEANS OF TRANSPORTATION)
$47,500 to $49,999:
    (Repeat MEANS OF TRANSPORTATION)
$50,000 to $54,999:
    (Repeat MEANS OF TRANSPORTATION)
$55,000 to $59,999:
    (Repeat MEANS OF TRANSPORTATION)
$60,000 to $74,999:
    (Repeat MEANS OF TRANSPORTATION)
$75,000 to $99,999:
    (Repeat MEANS OF TRANSPORTATION)
$100,000 to $124,999:
    (Repeat MEANS OF TRANSPORTATION)
$125,000 to $149,999:
    (Repeat MEANS OF TRANSPORTATION)
$150,000 or more:
    (Repeat MEANS OF TRANSPORTATION)

A-46. I-24   MEDIAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
    FOR WORKERS IN HOUSEHOLDS 11
    Universe: Workers 16 years and over in households
    Total
    Drove alone

In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

A-47. I-24 MEAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS 11

Universe: Workers 16 years and over in households
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

A-48. I-27 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN HOUSEHOLDS 66

Universe: Workers 16 years and over in households
Total, vehicles available:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
No vehicles:
    (Repeat MEANS OF TRANSPORTATION)
1 vehicle:
    (Repeat MEANS OF TRANSPORTATION)
2 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
3 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
4 or more vehicles:
    (Repeat MEANS OF TRANSPORTATION)

A-49. N/A   PERSONS IN HOUSEHOLD(5) BY WORKERS IN HOUSEHOLD(5) FOR WORKERS 25
Universe: Workers 16 years and over in households
Total, persons in household:
   All workers in households
   Workers in 1-worker household
   Workers in 2-worker household
   Workers in 3-worker household
   Workers in 4-or-more-worker household
1 person in household:
   (Repeat WORKERS IN HOUSEHOLD)
2 persons in household:
   (Repeat WORKERS IN HOUSEHOLD)
3 persons in household:
   (Repeat WORKERS IN HOUSEHOLD)
4 or more persons in household:
   (Repeat WORKERS IN HOUSEHOLD)

A-50. N/A   WORKERS IN GROUP QUARTERS(1) 1
Universe: Workers 16 years and over in group quarters
Total

A-51. N/A   MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN GROUP QUARTERS .. 11
Universe: Workers 16 years and over in group quarters
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

A-52. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car

Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

A-53. N/A   MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

A-54. N/A   STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab

Motorcycle
Bicycle
Walked
Other means

A-55. N/A MEDIAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)
BY TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 3-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

A-56. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY
TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

In 3-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

A-57. N/A   STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 3-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

A-58. N/A   TOTAL HOUSING UNITS(1)   1
Universe: Housing units
Total

A-59. N/A   UNWEIGHTED SAMPLE COUNT OF HOUSING UNITS(1)   1
Universe: Housing units
Total

A-60. N/A   PERCENT OF HOUSING UNITS IN SAMPLE(1)   1
Universe: Housing units
Total

A-61. N/A   VACANCY STATUS(5)   5
Universe: Vacant housing units
Total
For rent
For sale only
For seasonal, recreational, or occasional use
All other vacants

A-62. I-13   OCCUPANCY STATUS(3) BY UNITS IN STRUCTURE(7) 21
Universe: Housing units
Total, occupancy status:
    Total, units in structure
    1 unit, detached
    1 unit, attached
    2 to 4 units
    5 or more units
    Mobile home or trailer
    Other
Occupied:
    (Repeat UNITS IN STRUCTURE)
Vacant:
    (Repeat UNITS IN STRUCTURE)

A-63. N/A   AGGREGATE VEHICLES AVAILABLE(1)   1
Universe: Occupied housing units
Total

TOTAL NUMBER OF DATA CELLS IN PART A: 2,481

PART A RECORD SELECTION CRITERIA: All persons, households, and workers who live the State, and all housing units located in the State.

1990 CTPP TABLE OUTLINES

Statewide Element
Part B—Tabulations by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells

B-1. III-7 HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11) **132**
Universe: Workers 16 years and over
Total, Hispanic origin:
    All races:
        All means of transportation
        Drove alone
        In 2-person carpool
        In 3-person carpool
        In 4-or-more-person carpool
        Bus or trolley bus
        Streetcar, trolley car, subway, or elevated
        Railroad
        Bicycle or walked
        Taxicab, ferryboat, motorcycle, or other means
        Worked at home
    White:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Black:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Other:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
Not of Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)
Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

B-2. III-1 SEX(3) BY OCCUPATION(15) OF WORKERS **45**
Universe: Workers 16 years and over
Both sexes:
    All occupations
    Executive, administrative, and managerial occupations (000-042)
    Professional specialty occupations (043-202)
    Technicians and related support occupations (203-242)
    Sales occupations (243-302)
    Administrative support occupations, including clerical (303-402)
    Private household occupations (403-412)
    Protective service occupations (413-432)
    Service occupations, except protective and household (433-472)
    Farming, forestry, and fishing occupations (473-502)

Precision production, craft, and repair occupations (503-702)
Machine operators, assemblers, and inspectors (703-802)
Transportation and material moving occupations (803-863)
Handlers, equipment cleaners, helpers, and laborers (864-902)
Armed Forces

Male:
(Repeat OCCUPATION)
Female:
(Repeat OCCUPATION)

B-3. III-2 SEX(3) BY INDUSTRY(19) OF WORKERS 57
Universe: Workers 16 years and over
Both sexes:
    All industries
    Agriculture, forestry, and fisheries (000-039)
    Mining (040-059)
    Construction (060-099)
    Manufacturing, nondurable goods (100-229)
    Manufacturing, durable goods (230-399)
    Transportation (400-439)
    Communications and other public utilities (440-499)
    Wholesale trade (500-579)
    Retail trade (580-699)
    Finance, insurance, and real estate (700-720)
    Business and repair services (721-760)
    Personal services (761-799)
    Entertainment and recreation services (800-811)
    Health services (812-840)
    Educational services (842-860)
    Other professional and related services (841, 861-899)
    Public administration (900-939)
    Armed Forces (940-960)
Male:
    (Repeat INDUSTRY)
Female:
    (Repeat INDUSTRY)

B-4. III-3 SEX(3) BY CLASS OF WORKER(8) OF WORKERS 24
Universe: Workers 16 years and over
Both sexes:
    Total, class of worker
    Private for profit wage and salary workers
    Private not-for-profit wage and salary workers
    Local government workers
    State government workers
    Federal government workers
    Self-employed workers
    Unpaid family workers
Male:
    (Repeat CLASS OF WORKER)

Female:
    (Repeat CLASS OF WORKER)

B-5. N/A   SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) OF WORKERS 18
Universe: Workers 16 years and over
Both sexes:
    Total, number of hours worked last week
    Less than 15 hours
    15 to 20 hours
    21 to 34 hours
    35 to 40 hours
    Over 40 hours
Male:
    (Repeat NUMBER OF HOURS WORKED LAST WEEK)
Female:
    (Repeat NUMBER OF HOURS WORKED LAST WEEK)

B-6. III-8   SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33
Universe: Workers 16 years and over
Both sexes:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Male:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
Female:
    (Repeat MEANS OF TRANSPORTATION TO WORK)

B-7. III-5   MEANS OF TRANSPORTATION TO WORK(20) 20
Universe: Workers 16 years and over
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated

Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Worked at home

B-8. N/A TIME OF ARRIVAL AT WORK OF WORKERS(39) 39
Universe: Workers 16 years and over who did not work at home
Total
5:00 a.m. to 5:14 a.m.
5:15 a.m. to 5:29 a.m.
5:30 a.m. to 5:44 a.m.
5:45 a.m. to 5:59 a.m.
6:00 a.m. to 6:14 a.m.
6:15 a.m. to 6:29 a.m.
6:30 a.m. to 6:44 a.m.
6:45 a.m. to 6:59 a.m.
7:00 a.m. to 7:14 a.m.
7:15 a.m. to 7:29 a.m.
7:30 a.m. to 7:44 a.m.
7:45 a.m. to 7:59 a.m.
8:00 a.m. to 8:14 a.m.
8:15 a.m. to 8:29 a.m.
8:30 a.m. to 8:44 a.m.
8:45 a.m. to 8:59 a.m.
9:00 a.m. to 9:14 a.m.
9:15 a.m. to 9:29 a.m.
9:30 a.m. to 9:44 a.m.
9:45 a.m. to 9:59 a.m.
10:00 a.m. to 10:14 a.m.
10:15 a.m. to 10:29 a.m.
10:30 a.m. to 10:44 a.m.
10:45 a.m. to 10:59 a.m.
11:00 a.m. to 11:59 a.m.
12:00 p.m. to 12:59 p.m.
1:00 p.m. to 1:59 p.m.
2:00 p.m. to 2:59 p.m.
3:00 p.m. to 3:59 p.m.
4:00 p.m. to 4:59 p.m.
5:00 p.m. to 5:59 p.m.
6:00 p.m. to 6:59 p.m.
7:00 p.m. to 7:59 p.m.
8:00 p.m. to 8:59 p.m.
9:00 p.m. to 9:59 p.m.
10:00 p.m. to 10:59 p.m.
11:00 p.m. to 11:59 p.m.
12:00 a.m. to 4:59 a.m.

B-9. N/A   NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION
TO WORK(11) 66
Universe: Workers 16 years and over
Total, number of hours worked last week:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than 15 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
15 to 20 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
21 to 34 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
35 to 40 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
Over 40 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)

B-10. III-4   EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11) 132
Universe: Workers 16 years and over
With earnings:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than $5,000 or loss:
    (Repeat MEANS OF TRANSPORTATION)
$5,000 to $9,999:
    (Repeat MEANS OF TRANSPORTATION)
$10,000 to $14,999:
    (Repeat MEANS OF TRANSPORTATION)
$15,000 to $19,999:
    (Repeat MEANS OF TRANSPORTATION)
$20,000 to $24,999:

(Repeat MEANS OF TRANSPORTATION)
$25,000 to $29,999:
(Repeat MEANS OF TRANSPORTATION)
$30,000 to $34,999:
(Repeat MEANS OF TRANSPORTATION)
$35,000 to $49,999:
(Repeat MEANS OF TRANSPORTATION)
$50,000 to $74,999:
(Repeat MEANS OF TRANSPORTATION)
$75,000 or more:
(Repeat MEANS OF TRANSPORTATION)
No earnings:
(Repeat MEANS OF TRANSPORTATION)

B-11. III-4   MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

B-12. III-4   MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

B-13. III-10   AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1
Universe:Workers 16 years and over using a car, truck, or van
Total

B-14. III-11   WORKERS PER VEHICLE(1) 1
Universe: Workers 16 years and over using a car, truck, or van
Total

B-15. N/A AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) 1
Universe: Workers 16 years and over in a carpool
Total

B-16. III-12 WORKERS PER CARPOOL(1) 1
Universe: Workers 16 years and over in a carpool
Total

B-17. III-14 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR
WORKERS IN HOUSEHOLDS 66
Universe: Workers 16 years and over in households
Total, vehicles available:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
No vehicles:
    (Repeat MEANS OF TRANSPORTATION)
1 vehicle:
    (Repeat MEANS OF TRANSPORTATION)
2 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
3 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
4 or more vehicles:
    (Repeat MEANS OF TRANSPORTATION)

B-18. N/A TIME OF ARRIVAL AT WORK(7) BY MEANS OF TRANSPORTATION(10) 70
Universe: Workers 16 years and over who did not work at home
Total, time of arrival at work:
    All workers who did not work at home
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
5:30 a.m. to 6:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
6:30 a.m. to 7:29 a.m.:

(Repeat MEANS OF TRANSPORTATION)
7:30 a.m. to 8:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
8:30 a.m. to 9:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
9:30 a.m. to 10:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
10:30 a.m. to 5:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)

B-19. N/A   MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 160

Universe: Workers 16 years and over who did not work at home

Workers who did not work at home:
    All travel times
    Less than 5 minutes
    5 to 9 minutes
    10 to 14 minutes
    15 to 19 minutes
    20 to 24 minutes
    25 to 29 minutes
    30 to 34 minutes
    35 to 39 minutes
    40 to 44 minutes
    45 to 49 minutes
    50 to 54 minutes
    55 to 59 minutes
    60 to 74 minutes
    75 to 89 minutes
    90 minutes or more
Drove alone:
    (Repeat TRAVEL TIME TO WORK)
In 2-person carpool:
    (Repeat TRAVEL TIME TO WORK)
In 3-person carpool:
    (Repeat TRAVEL TIME TO WORK)
In 4-or-more-person carpool:
    (Repeat TRAVEL TIME TO WORK)
Bus or trolley bus:
    (Repeat TRAVEL TIME TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TRAVEL TIME TO WORK)
Railroad:
    (Repeat TRAVEL TIME TO WORK)
Bicycle or walked:
    (Repeat TRAVEL TIME TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TRAVEL TIME TO WORK)

B-20. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) 10

Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

B-21. N/A   MEAN TRAVEL TIME TO WORK (IN MINUTES)(1) BY MEANS OF TRANSPORTATION(10) 10

Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

B-22. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19) 19

Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

B-23. N/A   MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

B-24. N/A   STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

B-25. N/A MEDIAN TRAVEL TIME(1) IN MINUTES BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
    All arrival times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
    (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
    (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
    (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME OF ARRIVAL AT WORK)

B-26. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
    All arrival times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)

Bus or trolley bus:
    (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
    (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
    (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME OF ARRIVAL AT WORK)

B-27. N/A   STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF
TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
    All arrival times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
    (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
    (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
    (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME OF ARRIVAL AT WORK)

TOTAL NUMBER OF DATA CELLS IN PART B: 1,175

**PART B RECORD SELECTION CRITERIA: All workers who work in the State, regardless o
where they live.**

1990 CTPP TABLE OUTLINES

Statewide Element
Part C–Tabulations of Area of Residence by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells

C-1. IV-1 TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) BY MEANS OF TRANSPORTATION TO WORK(19) 38

Universe: Workers 16 years and over who did not work at home

Total, time leaving home to go to work:
    Workers who did not work at home
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-person carpool
    In 5-person carpool
    In 6-person carpool
    In 7-to-9-person carpool
    In 10-or-more-person carpool
    Bus or trolley bus
    Streetcar or trolley car
    Subway or elevated
    Railroad
    Ferryboat
    Taxicab
    Motorcycle
    Bicycle
    Walked
    Other means
Peak period (6:30 a.m. to 8:29 a.m.):
    (Repeat MEANS OF TRANSPORTATION)

C-2. IV-3 AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2

Universe:Workers 16 years and over using a car, truck, or van

Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

C-3. IV-3 WORKERS PER VEHICLE(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2

Universe: Workers 16 years and over using a car, truck, or van

Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

C-4. N/A AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) BY TIME LEAVING
HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2
Universe: Workers 16 years and over in a carpool
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

C-5. IV-3 WORKERS PER CARPOOL(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL
AND PEAK PERIOD(2) 2
Universe: Workers 16 years and over in a carpool
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

C-6. N/A MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19)
BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
    Workers who did not work at home
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-person carpool
    In 5-person carpool
    In 6-person carpool
    In 7-to-9-person carpool
    In 10-or-more-person carpool
    Bus or trolley bus
    Streetcar or trolley car
    Subway or elevated
    Railroad
    Ferryboat
    Taxicab
    Motorcycle
    Bicycle
    Walked
    Other means
Peak period (6:30 a.m. to 8:29 a.m.):
    (Repeat MEANS OF TRANSPORTATION)

C-7. IV-2 MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19)
BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
    Workers who did not work at home
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-person carpool
    In 5-person carpool
    In 6-person carpool

In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Peak period (6:30 a.m. to 8:29 a.m.):
    (Repeat MEANS OF TRANSPORTATION)

TOTAL NUMBER OF DATA CELLS IN PART C: 122

PART C RECORD SELECTION CRITERIA: All workers who live in the State regardless of where they work, and all workers who work in the State regardless of where they live.

1990 CTPP TABLE OUTLINES

Urban Element
Part 1–Tabulations by Area of Residence

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells
1-1.	N/A	TOTAL PERSONS(1)	1
		Universe: Persons	
		Total	
1-2.	N/A	UNWEIGHTED SAMPLE COUNT OF PERSONS(1)	1
		Universe: Persons	
		Total	
1-3.	N/A	PERCENT OF PERSONS IN SAMPLE(1)	1
		Universe: Persons	
		Total	
1-4.	N/A	TOTAL HOUSEHOLDS(1)	1
		Universe: Households	
		Total	
1-5.	I-4	HISPANIC ORIGIN(3) BY RACE(4)	12

Universe: Persons
Total, Hispanic origin:
    All races
    White
    Black
    Other
Not of Hispanic origin:
    (Repeat RACE)
Hispanic origin:
    (Repeat RACE)

| 1-6. | I-3 | SEX(3) BY AGE(12) .... | 36 |

Universe: Persons
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years

35 to 44 years
45 to 54 years
55 to 61 years
62 to 64 years
65 to 74 years
75 years and over
Male:
   (Repeat AGE)
Female:
   (Repeat AGE)

1-7.   **N/A**   SEX(3) BY EMPLOYMENT STATUS(6) 18
Universe: Persons 16 years and over
Both sexes:
   Total, employment status
   In labor force:
      In Armed Forces
      Civilian:
         Employed:
            At work
            Not at work
         Unemployed
   Not in labor force
Male:
   (Repeat EMPLOYMENT STATUS)
Female:
   (Repeat EMPLOYMENT STATUS)

1-8.   **I-5**   SCHOOL ENROLLMENT(6) BY AGE(8) 48
Universe: Persons 3 years and over
Total, school enrollment:
      Persons 3 years and over
      3 and 4 years
      5 years
      6 to 11 years
      12 to 17 years
      18 to 64 years
      65 to 74 years
      75 years and over
Enrolled:
   In nursery school or kindergarten:
      (Repeat AGE)
   In grade 1 to 9:
      (Repeat AGE)
   In grade 10 to 12:
      (Repeat AGE)
   In college:
      (Repeat AGE)
Not enrolled:
      (Repeat AGE)

1-9. N/A MOBILITY LIMITATION STATUS(3) BY AGE(11) **33**

Universe: Persons 16 years and over

Total, mobility limitation status:
    Persons 16 years and over
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years
    65 to 74 years
    75 years and over
With a mobility limitation:
    (Repeat AGE)
No mobility limitation:
    (Repeat AGE)

1-10. N/A MOBILITY LIMITATION STATUS(3) BY EMPLOYMENT STATUS(6) **18**

Universe: Persons 16 years and over

Total, mobility limitation status:
    Total, employment status
    In labor force:
        In Armed Forces
        Civilian:
            Employed:
                At work
                Not at work
            Unemployed
    Not in labor force
With a mobility limitation:
    (Repeat EMPLOYMENT STATUS)
No mobility limitation:
    (Repeat EMPLOYMENT STATUS)

1-11. I-1 SEX(3) BY AGE(12) FOR PERSONS IN HOUSEHOLDS **36**

Universe: Persons in households

Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years

65 to 74 years
75 years and over
Male:
    (Repeat AGE)
Female:
    (Repeat AGE)

1-12. **1-2** SEX(3) BY AGE(12) FOR PERSONS IN GROUP QUARTERS 36
Universe: Persons in group quarters
Both sexes:
    All ages
    Under 16 years
    16 and 17 years
    18 to 20 years
    21 to 24 years
    25 to 34 years
    35 to 44 years
    45 to 54 years
    55 to 61 years
    62 to 64 years
    65 to 74 years
    75 years and over
Male:
    (Repeat AGE
Female:
    (Repeat AGE)

1-13. **N/A** HOUSEHOLD SIZE(5) BY NUMBER OF WORKERS IN HOUSEHOLD(6) 30
Universe: Households
All households:
    Total, number of workers in household
    No workers in household
    1 worker in household
    2 workers in household
    3 workers in household
    4 or more workers in household
1-person households:
    (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
2-person households:
    (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
3-person households:
    (Repeat NUMBER OF WORKERS IN HOUSEHOLD)
4-or-more-person person households:
    (Repeat NUMBER OF WORKERS IN HOUSEHOLD)

1-14. **N/A** NUMBER OF WORKERS IN HOUSEHOLD(6) BY HOUSEHOLD INCOME IN 1989(26). . .156
Universe: Households
All households:
    Total, household income
    Less than $5,000

$5,000 to $9,999
$10,000 to $12,499
$12,500 to $14,999
$15,000 to $17,499
$17,500 to $19,999
$20,000 to $22,499
$22,500 to $24,999
$25,000 to $27,499
$27,500 to $29,999
$30,000 to $32,499
$32,500 to $34,999
$35,000 to $37,499
$37,500 to $39,999
$40,000 to $42,499
$42,500 to $44,999
$45,000 to $47,499
$47,500 to $49,999
$50,000 to $54,999
$55,000 to $59,999
$60,000 to $74,999
$75,000 to $99,999
$100,000 to $124,999
$125,000 to $149,999
$150,000 or more
No workers in household:
(Repeat HOUSEHOLD INCOME)
1 worker in household:
(Repeat HOUSEHOLD INCOME)
2 workers in household:
(Repeat HOUSEHOLD INCOME)
3 workers in household:
(Repeat HOUSEHOLD INCOME)
4 or more workers in household:
(Repeat HOUSEHOLD INCOME)

1-15. N/A MEDIAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN
HOUSEHOLD(6) 6
Universe: Households
Total
No workers in household
1 worker in household
2 workers in household
3 workers in household
4 or more workers in household

1-16. N/A MEAN HOUSEHOLD INCOME IN 1989(1) BY NUMBER OF WORKERS IN
HOUSEHOLD(6) 6
Universe: Households
Total
No workers in household

1 worker in household
2 workers in household
3 workers in household
4 or more workers in household

1-17. N/A HOUSEHOLD SIZE(5) BY VEHICLES AVAILABLE(9) 4 5
Universe: Households
All households:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles
    4 vehicles
    5 vehicles
    6 vehicles
    7 or more vehicles
1 person in household:
    (Repeat VEHICLES AVAILABLE)
2 persons in household:
    (Repeat VEHICLES AVAILABLE)
3 persons in household:
    (Repeat VEHICLES AVAILABLE)
4 or more persons in household:
    (Repeat VEHICLES AVAILABLE)

1-18. N/A NUMBER OF WORKERS IN HOUSEHOLD(6) BY VEHICLES AVAILABLE(9) 5 4
Universe: Households
All households:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles
    4 vehicles
    5 vehicles
    6 vehicles
    7 or more vehicles
No workers:
    (Repeat VEHICLES AVAILABLE)
1 worker:
    (Repeat VEHICLES AVAILABLE)
2 workers:
    (Repeat VEHICLES AVAILABLE)
3 workers:
    (Repeat VEHICLES AVAILABLE)
4 or more workers:
    (Repeat VEHICLES AVAILABLE)

1-19. N/A   NUMBER OF PERSONS 16 YEARS AND OVER IN HOUSEHOLD(5) BY VEHICLES
AVAILABLE(9) 45

Universe: Households with at least one person 16 years and over

All households:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles
    4 vehicles
    5 vehicles
    6 vehicles
    7 or more vehicles
1 person 16 and over:
    (Repeat VEHICLES AVAILABLE)
2 persons 16 and over:
    (Repeat VEHICLES AVAILABLE)
3 persons 16 and over:
    (Repeat VEHICLES AVAILABLE)
4 or more persons 16 and over:
    (Repeat VEHICLES AVAILABLE)

1-20. N/A   VEHICLES AVAILABLE(9) BY HOUSEHOLD INCOME IN 1989(26) 234

Universe: Households

Total, vehicles available:
    All incomes
    Less than $5,000
    $5,000 to $9,999
    $10,000 to $12,499
    $12,500 to $14,999
    $15,000 to $17,499
    $17,500 to $19,999
    $20,000 to $22,499
    $22,500 to $24,999
    $25,000 to $27,499
    $27,500 to $29,999
    $30,000 to $32,499
    $32,500 to $34,999
    $35,000 to $37,499
    $37,500 to $39,999
    $40,000 to $42,499
    $42,500 to $44,999
    $45,000 to $47,499
    $47,500 to $49,999
    $50,000 to $54,999
    $55,000 to $59,999
    $60,000 to $74,999
    $75,000 to $99,999
    $100,000 to $124,999
    $125,000 to $149,999

$150,000 or more
No vehicles:
    (Repeat HOUSEHOLD INCOME)
1 vehicle:
    (Repeat HOUSEHOLD INCOME)
2 vehicles:
    (Repeat HOUSEHOLD INCOME)
3 vehicles:
    (Repeat HOUSEHOLD INCOME)
4 vehicles:
    (Repeat HOUSEHOLD INCOME)
5 vehicles:
    (Repeat HOUSEHOLD INCOME)
6 vehicles:
    (Repeat HOUSEHOLD INCOME)
7 or more vehicles:
    (Repeat HOUSEHOLD INCOME)

1-21. N/A   MEDIAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9)   9
Universe: Households
Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

1-22. N/A   MEAN HOUSEHOLD INCOME IN 1989(1) BY VEHICLES AVAILABLE(9)   9
Universe: Households
Total
No vehicles
1 vehicle
2 vehicles
3 vehicles
4 vehicles
5 vehicles
6 vehicles
7 or more vehicles

1-23. N/A   UNITS IN STRUCTURE(7) BY VEHICLES AVAILABLE(9) 63
Universe: Households
Total, units in structure:
    Total, vehicles available
    No vehicles
    1 vehicle
    2 vehicles
    3 vehicles

4 vehicles
5 vehicles
6 vehicles
7 or more vehicles
1 unit, detached:
   (Repeat VEHICLES AVAILABLE)
1 unit, attached:
   (Repeat VEHICLES AVAILABLE)
2 to 4 units:
   (Repeat VEHICLES AVAILABLE)
5 or more units:
   (Repeat VEHICLES AVAILABLE)
Mobile home or trailer:
   (Repeat VEHICLES AVAILABLE)
Other:
   (Repeat VEHICLES AVAILABLE)

1-24. 1-25 HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11). . 132
Universe: Workers 16 years and over
Total, Hispanic origin:
   All races:
      All means of transportation
      Drove alone
      In 2-person carpool
      In 3-person carpool
      In 4-or-more-person carpool
      Bus or trolley bus
      Streetcar, trolley car, subway, or elevated
      Railroad
      Bicycle or walked
      Taxicab, ferryboat, motorcycle, or other means
      Worked at home
   White:
      (Repeat MEANS OF TRANSPORTATION TO WORK)
   Black:
      (Repeat MEANS OF TRANSPORTATION TO WORK)
   Other:
      (Repeat MEANS OF TRANSPORTATION TO WORK)
Not of Hispanic origin:
   (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)
Hispanic origin:
   (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

1-25. 1-6 SEX(3) BY OCCUPATION(15) FOR WORKERS 45
Universe: Workers 16 years and over
Both sexes:
   All occupations
   Executive, administrative, and managerial occupations (000-042)
   Professional specialty occupations (043-202)
   Technicians and related support occupations (203-242)

State government workers
Federal government workers
Self-employed workers
Unpaid family workers
Male:
   (Repeat CLASS OF WORKER)
Female:
   (Repeat CLASS OF WORKER)

1-28. N/A   SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) FOR WORKERS 18
Universe: Workers 16 years and over
Both sexes:
   Total, number of hours worked last week
   Less than 15 hours
   15 to 20 hours
   21 to 34 hours
   35 to 40 hours
   Over 40 hours
Male:
   (Repeat NUMBER OF HOURS WORKED LAST WEEK)
Female:
   (Repeat NUMBER OF HOURS WORKED LAST WEEK)

1-29. N/A   SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33
Universe: Workers 16 years and over
Both sexes:
   All means of transportation
   Drove alone
   In 2-person carpool
   In 3-person carpool
   In 4-or-more-person carpool
   Bus or trolley bus
   Streetcar, trolley car, subway, or elevated
   Railroad
   Bicycle or walked
   Taxicab, ferryboat, motorcycle, or other means
   Worked at home
Male:
   (Repeat MEANS OF TRANSPORTATION TO WORK)
Female:
   (Repeat MEANS OF TRANSPORTATION TO WORK)

1-30. I-18   MEANS OF TRANSPORTATION TO WORK(20) 20
Universe: Workers 16 years and over
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool

In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Worked at home

1-31. N/A   TIME LEAVING HOME TO GO TO WORK(39) 39
Universe: Workers 16 years and over who did not work at home
Total
5:00 a.m. to 5:14 a.m.
5:15 a.m. to 5:29 a.m.
5:30 a.m. to 5:44 a.m.
5:45 a.m. to 5:59 a.m.
6:00 a.m. to 6:14 a.m.
6:15 a.m. to 6:29 a.m.
6:30 a.m. to 6:44 a.m.
6:45 a.m. to 6:59 a.m.
7:00 a.m. to 7:14 a.m.
7:15 a.m. to 7:29 a.m.
7:30 a.m. to 7:44 a.m.
7:45 a.m. to 7:59 a.m.
8:00 a.m. to 8:14 a.m.
8:15 a.m. to 8:29 a.m.
8:30 a.m. to 8:44 a.m.
8:45 a.m. to 8:59 a.m.
9:00 a.m. to 9:14 a.m.
9:15 a.m. to 9:29 a.m.
9:30 a.m. to 9:44 a.m.
9:45 a.m. to 9:59 a.m.
10:00 a.m. to 10:14 a.m.
10:15 a.m. to 10:29 a.m.
10:30 a.m. to 10:44 a.m.
10:45 a.m. to 10:59 a.m.
11:00 a.m. to 11:59 a.m.
12:00 p.m. to 12:59 p.m.
1:00 p.m. to 1:59 p.m.
2:00 p.m. to 2:59 p.m.
3:00 p.m. to 3:59 p.m.
4:00 p.m. to 4:59 p.m.
5:00 p.m. to 5:59 p.m.
6:00 p.m. to 6:59 p.m.

7:00 p.m. to 7:59 p.m.
8:00 p.m. to 8:59 p.m.
9:00 p.m. to 9:59 p.m.
10:00 p.m. to 10:59 p.m.
11:00 p.m. to 11:59 p.m.
12:00 a.m. to 4:59 a.m.

1-32. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION
TO WORK(11) 66
Universe: Workers 16 years and over
Total, number of hours worked last week:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than 15 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
15 to 20 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
21 to 34 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
35 to 40 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
Over 40 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)

1-33. I-23 EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11) 132
Universe: Workers 16 years and over
With earnings:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than $5,000 or loss:
    (Repeat MEANS OF TRANSPORTATION)
$5,000 to $9,999:

(Repeat MEANS OF TRANSPORTATION)
$10,000 to $14,999:
(Repeat MEANS OF TRANSPORTATION)
$15,000 to $19,999:
(Repeat MEANS OF TRANSPORTATION)
$20,000 to $24,999:
(Repeat MEANS OF TRANSPORTATION)
$25,000 to $29,999:
(Repeat MEANS OF TRANSPORTATION)
$30,000 to $34,999:
(Repeat MEANS OF TRANSPORTATION)
$35,000 to $49,999:
(Repeat MEANS OF TRANSPORTATION)
$50,000 to $74,999:
(Repeat MEANS OF TRANSPORTATION)
$75,000 or more:
(Repeat MEANS OF TRANSPORTATION)
No earnings:
(Repeat MEANS OF TRANSPORTATION)

1-34. 1-23 MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

1-35. 1-23 MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

1-36. N/A   TIME LEAVING HOME TO GO TO WORK(7) BY MEANS OF TRANSPORTATION(10) ... 70
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
     All workers who did not work at home
     Drove alone
     In 2-person carpool
     In 3-person carpool
     In 4-or-more-person carpool
     Bus or trolley bus
     Streetcar, trolley car, subway, or elevated
     Railroad
     Bicycle or walked
     Taxicab, ferryboat, motorcycle, or other means
5:30 a.m. to 6:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
6:30 a.m. to 7:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
7:30 a.m. to 8:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
8:30 a.m. to 9:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
9:30 a.m. to 10:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)
10:30 a.m. to 5:29 a.m.:
     (Repeat MEANS OF TRANSPORTATION)

1-37. N/A   MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 160
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
     All travel times
     Less than 5 minutes
     5 to 9 minutes
     10 to 14 minutes
     15 to 19 minutes
     20 to 24 minutes
     25 to 29 minutes
     30 to 34 minutes
     35 to 39 minutes
     40 to 44 minutes
     45 to 49 minutes
     50 to 54 minutes
     55 to 59 minutes
     60 to 74 minutes
     75 to 89 minutes
     90 minutes or more
Drove alone:
     (Repeat TRAVEL TIME TO WORK)
In 2-person carpool:
     (Repeat TRAVEL TIME TO WORK)
In 3-person carpool:

(Repeat TRAVEL TIME TO WORK)
In 4-or-more-person carpool:
    (Repeat TRAVEL TIME TO WORK)
Bus or trolley bus:
    (Repeat TRAVEL TIME TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TRAVEL TIME TO WORK)
Railroad:
    (Repeat TRAVEL TIME TO WORK)
Bicycle or walked:
    (Repeat TRAVEL TIME TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TRAVEL TIME TO WORK)

1-38. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(10) 10
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

1-39. N/A   MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(10) 10
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

1-40. N/A   AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1
Universe:Workers 16 years and over using a car, truck, or van
Total

1-41. I-21   WORKERS PER VEHICLE(1) 1
Universe: Workers 16 years and over using a car, truck, or van
Total

1-42. N/A   AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) 1
Universe: Workers 16 years and over in a carpool
Total

1-43. I-22   WORKERS PER CARPOOL(1) 1
Universe: Workers 16 years and over in a carpool
Total

1-44. N/A   MOBILITY LIMITATION STATUS(3) BY MEANS OF TRANSPORTATION TO WORK(11). . 33
Universe: Workers 16 years and over
Total, mobility limitation status:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
With a mobility limitation:
    (Repeat MEANS OF TRANSPORTATION)
No mobility limitation:
    (Repeat MEANS OF TRANSPORTATION)

1-45. I-24   HOUSEHOLD INCOME IN 1989(26) BY MEANS OF TRANSPORTATION TO
WORK(11) FOR WORKERS IN HOUSEHOLDS 286
Universe: Workers 16 years and over in households
Total, household income for workers in households:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than $5,000:
    (Repeat MEANS OF TRANSPORTATION)
$5,000 to $9,999:
    (Repeat MEANS OF TRANSPORTATION)
$10,000 to $12,499:
    (Repeat MEANS OF TRANSPORTATION)
$12,500 to $14,999:
    (Repeat MEANS OF TRANSPORTATION)

$15,000 to $17,499:
    (Repeat MEANS OF TRANSPORTATION)
$17,500 to $19,999:
    (Repeat MEANS OF TRANSPORTATION)
$20,000 to $22,499:
    (Repeat MEANS OF TRANSPORTATION)
$22,500 to $24,999:
    (Repeat MEANS OF TRANSPORTATION)
$25,000 to $27,499:
    (Repeat MEANS OF TRANSPORTATION)
$27,500 to $29,999:
    (Repeat MEANS OF TRANSPORTATION)
$30,000 to $32,499:
    (Repeat MEANS OF TRANSPORTATION)
$32,500 to $34,999:
    (Repeat MEANS OF TRANSPORTATION)
$35,000 to $37,499:
    (Repeat MEANS OF TRANSPORTATION)
$37,500 to $39,999:
    (Repeat MEANS OF TRANSPORTATION)
$40,000 to $42,499:
    (Repeat MEANS OF TRANSPORTATION)
$42,500 to $44,999:
    (Repeat MEANS OF TRANSPORTATION)
$45,000 to $47,499:
    (Repeat MEANS OF TRANSPORTATION)
$47,500 to $49,999:
    (Repeat MEANS OF TRANSPORTATION)
$50,000 to $54,999:
    (Repeat MEANS OF TRANSPORTATION)
$55,000 to $59,999:
    (Repeat MEANS OF TRANSPORTATION)
$60,000 to $74,999:
    (Repeat MEANS OF TRANSPORTATION)
$75,000 to $99,999:
    (Repeat MEANS OF TRANSPORTATION)
$100,000 to $124,999:
    (Repeat MEANS OF TRANSPORTATION)
$125,000 to $149,999:
    (Repeat MEANS OF TRANSPORTATION)
$150,000 or more:
    (Repeat MEANS OF TRANSPORTATION)

1-46. 1-24   MEDIAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
        FOR WORKERS IN HOUSEHOLDS 11
        Universe: Workers 16 years and over in households
        Total
        Drove alone
        In 2-person carpool
        In 3-person carpool

In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

1-47. I-24   MEAN HOUSEHOLD INCOME(1) BY MEANS OF TRANSPORTATION TO WORK(11)
              FOR WORKERS IN HOUSEHOLDS 11
              Universe: Workers 16 years and over in households
              Total
              Drove alone
              In 2-person carpool
              In 3-person carpool
              In 4-or-more-person carpool
              Bus or trolley bus
              Streetcar, trolley car, subway, or elevated
              Railroad
              Bicycle or walked
              Taxicab, ferryboat, motorcycle, or other means
              Worked at home

1-48. I-27   VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR
              WORKERS IN HOUSEHOLDS 66
              Universe: Workers 16 years and over in households
              Total, vehicles available:
                  All means of transportation
                  Drove alone
                  In 2-person carpool
                  In 3-person carpool
                  In 4-or-more-person carpool
                  Bus or trolley bus
                  Streetcar, trolley car, subway, or elevated
                  Railroad
                  Bicycle or walked
                  Taxicab, ferryboat, motorcycle, or other means
                  Worked at home
              No vehicles:
                  (Repeat MEANS OF TRANSPORTATION)
              1 vehicle:
                  (Repeat MEANS OF TRANSPORTATION)
              2 vehicles:
                  (Repeat MEANS OF TRANSPORTATION)
              3 vehicles:
                  (Repeat MEANS OF TRANSPORTATION)
              4 or more vehicles:
                  (Repeat MEANS OF TRANSPORTATION)

1-49. N/A PERSONS IN HOUSEHOLD(5) BY WORKERS IN HOUSEHOLD(5) FOR WORKERS 25
Universe: Workers 16 years and over in households
Total, persons in household:
    All workers in households
    Workers in 1-worker household
    Workers in 2-worker household
    Workers in 3-worker household
    Workers in 4-or-more-worker household
1 person in household:
    (Repeat WORKERS IN HOUSEHOLD)
2 persons in household:
    (Repeat WORKERS IN HOUSEHOLD)
3 persons in household:
    (Repeat WORKERS IN HOUSEHOLD)
4 or more persons in household:
    (Repeat WORKERS IN HOUSEHOLD)

1-50. N/A WORKERS IN GROUP QUARTERS(1) 1
Universe: Workers 16 years and over in group quarters
Total

1-51. N/A MEANS OF TRANSPORTATION TO WORK(11) FOR WORKERS IN GROUP QUARTERS .. 11
Universe: Workers 16 years and over in group quarters
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

1-52. N/A MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated

Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

1-53. N/A   MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

1-54. N/A   STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle

Bicycle
Walked
Other means

1-55. N/A MEDIAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10)
BY TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 3-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

1-56. N/A MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY
TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 3-person carpool:

(Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

1-57. N/A   STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY TIME LEAVING HOME TO GO TO WORK(7) 70
Universe: Workers 16 years and over who did not work at home
All workers who did not work at home:
    All departure times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 2-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 3-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
In 4-or-more-person carpool:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bus or trolley bus:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Railroad:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Bicycle or walked:
    (Repeat TIME LEAVING HOME TO GO TO WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME LEAVING HOME TO GO TO WORK)

1-58. N/A TOTAL HOUSING UNITS(1) 1
Universe: Housing units
Total

1-59. N/A UNWEIGHTED SAMPLE COUNT OF HOUSING UNITS(1) 1
Universe: Housing units
Total

1-60. N/A PERCENT OF HOUSING UNITS IN SAMPLE(1) 1
Universe: Housing units
Total

1-61. N/A VACANCY STATUS(5) 5
Universe: Vacant housing units
Total
For rent
For sale only
For seasonal, recreational, or occasional use
All other vacants

1-62. I-13 OCCUPANCY STATUS(3) BY UNITS IN STRUCTURE(7) 21
Universe: Housing units
Total, occupancy status:
    Total, units in structure
    1 unit, detached
    1 unit, attached
    2 to 4 units
    5 or more units
    Mobile home or trailer
    Other
Occupied:
    (Repeat UNITS IN STRUCTURE)
Vacant:
    (Repeat UNITS IN STRUCTURE)

1-63. N/A AGGREGATE VEHICLES AVAILABLE(1) 1
Universe: Occupied housing units
Total

TOTAL NUMBER OF DATA CELLS IN PART 1: 2,481

**PART 1 RECORD SELECTION CRITERIA: All persons, households, and workers who live i
the CTPP region, and all housing units located ir
the CTPP region.**

1990 CTPP TABLE OUTLINES

Urban Element
Part 2–Tabulations by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells

2-1. III-7 HISPANIC ORIGIN(3) BY RACE(4) BY MEANS OF TRANSPORTATION TO WORK(11) 132
Universe: Workers 16 years and over
Total, Hispanic origin:
    All races:
        All means of transportation
        Drove alone
        In 2-person carpool
        In 3-person carpool
        In 4-or-more-person carpool
        Bus or trolley bus
        Streetcar, trolley car, subway, or elevated
        Railroad
        Bicycle or walked
        Taxicab, ferryboat, motorcycle, or other means
        Worked at home
    White:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Black:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
    Other:
        (Repeat MEANS OF TRANSPORTATION TO WORK)
  Not of Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)
  Hispanic origin:
    (Repeat RACE By MEANS OF TRANSPORTATION TO WORK)

2-2. III-1 SEX(3) BY OCCUPATION(15) OF WORKERS 45
Universe: Workers 16 years and over
Both sexes:
    All occupations
    Executive, administrative, and managerial occupations (000-042)
    Professional specialty occupations (043-202)
    Technicians and related support occupations (203-242)
    Sales occupations (243-302)

2-4. **III-3**   SEX(3) BY CLASS OF WORKER(8) OF WORKERS 24
Universe: Workers 16 years and over
Both sexes:
    Total, class of worker
    Private for profit wage and salary workers
    Private not-for-profit wage and salary workers
    Local government workers
    State government workers
    Federal government workers
    Self-employed workers
    Unpaid family workers
Male:
    (Repeat CLASS OF WORKER)
Female:
    (Repeat CLASS OF WORKER)

2-5. **N/A**   SEX(3) BY NUMBER OF HOURS WORKED LAST WEEK(6) OF WORKERS 18
Universe: Workers 16 years and over
Both sexes:
    Total, number of hours worked last week
    Less than 15 hours
    15 to 20 hours
    21 to 34 hours
    35 to 40 hours
    Over 40 hours
Male:
    (Repeat NUMBER OF HOURS WORKED LAST WEEK)
Female:
    (Repeat NUMBER OF HOURS WORKED LAST WEEK)

2-6. **III-8**   SEX(3) BY MEANS OF TRANSPORTATION TO WORK(11) 33
Universe: Workers 16 years and over
Both sexes:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home

Male:
 (Repeat MEANS OF TRANSPORTATION TO WORK)
Female:
 (Repeat MEANS OF TRANSPORTATION TO WORK)

2-7. III-5 MEANS OF TRANSPORTATION TO WORK(20) 20
Universe: Workers 16 years and over
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Worked at home

2-8. N/A TIME OF ARRIVAL AT WORK OF WORKERS(39) 39
Universe: Workers 16 years and over who did not work at home
Total
5:00 a.m. to 5:14 a.m.
5:15 a.m. to 5:29 a.m.
5:30 a.m. to 5:44 a.m.
5:45 a.m. to 5:59 a.m.
6:00 a.m. to 6:14 a.m.
6:15 a.m. to 6:29 a.m.
6:30 a.m. to 6:44 a.m.
6:45 a.m. to 6:59 a.m.
7:00 a.m. to 7:14 a.m.
7:15 a.m. to 7:29 a.m.
7:30 a.m. to 7:44 a.m.
7:45 a.m. to 7:59 a.m.
8:00 a.m. to 8:14 a.m.

8:15 a.m. to 8:29 a.m.
8:30 a.m. to 8:44 a.m.
8:45 a.m. to 8:59 a.m.
9:00 a.m. to 9:14 a.m.
9:15 a.m. to 9:29 a.m.
9:30 a.m. to 9:44 a.m.
9:45 a.m. to 9:59 a.m.
10:00 a.m. to 10:14 a.m.
10:15 a.m. to 10:29 a.m.
10:30 a.m. to 10:44 a.m.
10:45 a.m. to 10:59 a.m.
11:00 a.m. to 11:59 a.m.
12:00 p.m. to 12:59 p.m.
1:00 p.m. to 1:59 p.m.
2:00 p.m. to 2:59 p.m.
3:00 p.m. to 3:59 p.m.
4:00 p.m. to 4:59 p.m.
5:00 p.m. to 5:59 p.m.
6:00 p.m. to 6:59 p.m.
7:00 p.m. to 7:59 p.m.
8:00 p.m. to 8:59 p.m.
9:00 p.m. to 9:59 p.m.
10:00 p.m. to 10:59 p.m.
11:00 p.m. to 11:59 p.m.
12:00 a.m. to 4:59 a.m.

2-9. N/A NUMBER OF HOURS WORKED LAST WEEK(6) BY MEANS OF TRANSPORTATION
TO WORK(11) 66
Universe: Workers 16 years and over
Total, number of hours worked last week:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
Less than 15 hours:
    (Repeat MEANS OF TRANSPORTATION TO WORK)
15 to 20 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

21 to 34 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

35 to 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

Over 40 hours:

(Repeat MEANS OF TRANSPORTATION TO WORK)

2-10. III-4   EARNINGS OF WORKERS(12) BY MEANS OF TRANSPORTATION(11) 132

Universe: Workers 16 years and over

With earnings:

       All means of transportation

       Drove alone

       In 2-person carpool

       In 3-person carpool

       In 4-or-more-person carpool

       Bus or trolley bus

       Streetcar, trolley car, subway, or elevated

       Railroad

       Bicycle or walked

       Taxicab, ferryboat, motorcycle, or other means

       Worked at home

Less than $5,000 or loss:

(Repeat MEANS OF TRANSPORTATION)

$5,000 to $9,999:

(Repeat MEANS OF TRANSPORTATION)

$10,000 to $14,999:

(Repeat MEANS OF TRANSPORTATION)

$15,000 to $19,999:

(Repeat MEANS OF TRANSPORTATION)

$20,000 to $24,999:

(Repeat MEANS OF TRANSPORTATION)

$25,000 to $29,999:

(Repeat MEANS OF TRANSPORTATION)

$30,000 to $34,999:

(Repeat MEANS OF TRANSPORTATION)

$35,000 to $49,999:

(Repeat MEANS OF TRANSPORTATION)

$50,000 to $74,999:

(Repeat MEANS OF TRANSPORTATION)

$75,000 or more:

(Repeat MEANS OF TRANSPORTATION)

No earnings:

(Repeat MEANS OF TRANSPORTATION)

2-11. III-4 MEDIAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or ,trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

2-12. III-4 MEAN EARNINGS OF WORKERS(1) BY MEANS OF TRANSPORTATION(11) 11
Universe: Workers 16 years and over with earnings
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means
Worked at home

2-13. III-10 AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) 1
Universe:Workers 16 years and over using a car, truck, or van
Total

2-14. III-11 WORKERS PER VEHICLE(1) 1
Universe: Workers 16 years and over using a car, truck, or van
Total

2-15. N/A AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) 1
Universe: Workers 16 years and over in a carpool
Total

2-16. III-12 WORKERS PER CARPOOL(1)... 1
Universe: Workers 16 years and over in a carpool
Total

2-17. III-14 VEHICLES AVAILABLE(6) BY MEANS OF TRANSPORTATION TO WORK(11) FOR
WORKERS IN HOUSEHOLDS 66
Universe: Workers 16 years and over in households
Total, vehicles available:
    All means of transportation
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
    Worked at home
No vehicles:
    (Repeat MEANS OF TRANSPORTATION)
1 vehicle:
    (Repeat MEANS OF TRANSPORTATION)
2 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
3 vehicles:
    (Repeat MEANS OF TRANSPORTATION)
4 or more vehicles:
    (Repeat MEANS OF TRANSPORTATION)

2-18. N/A TIME OF ARRIVAL AT WORK(7) BY MEANS OF TRANSPORTATION(10) 70
Universe: Workers 16 years and over who did not work at home
Total, time of arrival at work:
    All workers who did not work at home
    Drove alone
    In 2-person carpool
    In 3-person carpool
    In 4-or-more-person carpool
    Bus or trolley bus
    Streetcar, trolley car, subway, or elevated
    Railroad
    Bicycle or walked
    Taxicab, ferryboat, motorcycle, or other means
5:30 a.m. to 6:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
6:30 a.m. to 7:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)

7:30 a.m. to 8:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
8:30 a.m. to 9:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
9:30 a.m. to 10:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)
10:30 a.m. to 5:29 a.m.:
    (Repeat MEANS OF TRANSPORTATION)

2-19. N/A   MEANS OF TRANSPORTATION TO WORK(10) BY TRAVEL TIME TO WORK(16) 160
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
    All travel times
    Less than 5 minutes
    5 to 9 minutes
    10 to 14 minutes
    15 to 19 minutes
    20 to 24 minutes
    25 to 29 minutes
    30 to 34 minutes
    35 to 39 minutes
    40 to 44 minutes
    45 to 49 minutes
    50 to 54 minutes
    55 to 59 minutes
    60 to 74 minutes
    75 to 89 minutes
    90 minutes or more
Drove alone:
    (Repeat TRAVEL TIME TO WORK)
In 2-person carpool:
    (Repeat TRAVEL TIME TO WORK)
In 3-person carpool:
    (Repeat TRAVEL TIME TO WORK)
In 4-or-more-person carpool:
    (Repeat TRAVEL TIME TO WORK)
Bus or trolley bus:
    (Repeat TRAVEL TIME TO WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TRAVEL TIME TO WORK)
Railroad:
    (Repeat TRAVEL TIME TO WORK)
Bicycle or walked:
    (Repeat TRAVEL TIME TO WORK)

Taxicab, ferryboat, motorcycle, or other means:
  (Repeat TRAVEL TIME TO WORK)

2-20. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(10) 10
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

2-21. N/A   MEAN TRAVEL TIME TO WORK (IN MINUTES)(1) BY MEANS OF
TRANSPORTATION(10) 10
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-or-more-person carpool
Bus or trolley bus
Streetcar, trolley car, subway, or elevated
Railroad
Bicycle or walked
Taxicab, ferryboat, motorcycle, or other means

2-22. N/A   MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus

Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

2-23. N/A   MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

2-24. N/A   STANDARD DEVIATION OF TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF
TRANSPORTATION(19) 19
Universe: Workers 16 years and over who did not work at home
Total
Drove alone
In 2-person carpool
In 3-person carpool
In 4-person carpool
In 5-person carpool
In 6-person carpool
In 7-to-9-person carpool

In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means

2-25. N/A   MEDIAN TRAVEL TIME(1) IN MINUTES BY MEANS OF TRANSPORTATION(10)
BY TIME OF ARRIVAL AT WORK(7) 70
Universe: Workers 16 years and over who did not work at home
Workers who did not work at home:
    All arrival times
    5:30 a.m. to 6:29 a.m.
    6:30 a.m. to 7:29 a.m.
    7:30 a.m. to 8:29 a.m.
    8:30 a.m. to 9:29 a.m.
    9:30 a.m. to 10:29 a.m.
    10:30 a.m. to 5:29 a.m.
Drove alone:
    (Repeat TIME OF ARRIVAL AT WORK)
In 2-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
    (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
    (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
    (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME OF ARRIVAL AT WORK)

2-26. N/A   MEAN TRAVEL TIME IN MINUTES(1) BY MEANS OF TRANSPORTATION(10) BY
             TIME OF ARRIVAL AT WORK(7) 70
             Universe: Workers 16 years and over who did not work at home
             Workers who did not work at home:
                 All arrival times
                 5:30 a.m. to 6:29 a.m.
                 6:30 a.m. to 7:29 a.m.
                 7:30 a.m. to 8:29 a.m.
                 8:30 a.m. to 9:29 a.m.
                 9:30 a.m. to 10:29 a.m.
                 10:30 a.m. to 5:29 a.m.
             Drove alone:
                 (Repeat TIME OF ARRIVAL AT WORK)
             In 2-person carpool:
                 (Repeat TIME OF ARRIVAL AT WORK)
             In 3-person carpool:
                 (Repeat TIME OF ARRIVAL AT WORK)
             In 4-or-more-person carpool:
                 (Repeat TIME OF ARRIVAL AT WORK)
             Bus or trolley bus:
                 (Repeat TIME OF ARRIVAL AT WORK)
             Streetcar, trolley car, subway, or elevated:
                 (Repeat TIME OF ARRIVAL AT WORK)
             Railroad:
                 (Repeat TIME OF ARRIVAL AT WORK)
             Bicycle or walked:
                 (Repeat TIME OF ARRIVAL AT WORK)
             Taxicab, ferryboat, motorcycle, or other means:
                 (Repeat TIME OF ARRIVAL AT WORK)

2-27. N/A   STANDARD DEVIATION OF TRAVEL TIME IN MINUTES(1) BY MEANS OF
             TRANSPORTATION(10) BY TIME OF ARRIVAL AT WORK(7) 70
             Universe: Workers 16 years and over who did not work at home
             Workers who did not work at home:
                 All arrival times
                 5:30 a.m. to 6:29 a.m.
                 6:30 a.m. to 7:29 a.m.
                 7:30 a.m. to 8:29 a.m.
                 8:30 a.m. to 9:29 a.m.
                 9:30 a.m. to 10:29 a.m.
                 10:30 a.m. to 5:29 a.m.
             Drove alone:
                 (Repeat TIME OF ARRIVAL AT WORK)
             In 2-person carpool:

(Repeat TIME OF ARRIVAL AT WORK)
In 3-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
In 4-or-more-person carpool:
    (Repeat TIME OF ARRIVAL AT WORK)
Bus or trolley bus:
    (Repeat TIME OF ARRIVAL AT WORK)
Streetcar, trolley car, subway, or elevated:
    (Repeat TIME OF ARRIVAL AT WORK)
Railroad:
    (Repeat TIME OF ARRIVAL AT WORK)
Bicycle or walked:
    (Repeat TIME OF ARRIVAL AT WORK)
Taxicab, ferryboat, motorcycle, or other means:
    (Repeat TIME OF ARRIVAL AT WORK)

TOTAL NUMBER OF DATA CELLS IN PART 2: 1,175

PART 2 RECORD SELECTION CRITERIA: All workers who work in the CTPP region, regardless of where they live.

1990 CTPP TABLE OUTLINES

Urban Element
Part 3–Tabulations of Area of Residence by Area of Work

Note: A colon(:) after an entry below indicates that the entry is a heading, not a data cell. The heading is a modifier or descriptor of the categories indented beneath it, but no data are associated with the heading line.

1990 Table	1980 Table	Title	Total number of data cells

3-1.   IV-1   TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) BY MEANS OF TRANSPORTATION TO WORK(19) **38**
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
  Workers who did not work at home
  Drove alone
  In 2-person carpool
  In 3-person carpool
  In 4-person carpool
  In 5-person carpool
  In 6-person carpool
  In 7-to-9-person carpool
  In 10-or-more-person carpool
  Bus or trolley bus
  Streetcar or trolley car
  Subway or elevated
  Railroad
  Ferryboat
  Taxicab
  Motorcycle
  Bicycle
  Walked
  Other means
Peak period (6:30 a.m. to 8:29 a.m.):
 (Repeat MEANS OF TRANSPORTATION)

3-2.   IV-3   AGGREGATE NUMBER OF VEHICLES USED IN TRAVEL TO WORK(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) **2**
Universe:Workers 16 years and over using a car, truck, or van
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

3-3.   IV-3   WORKERS PER VEHICLE(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) **2**
Universe: Workers 16 years and over using a car, truck, or van
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

3-4. N/A AGGREGATE NUMBER OF VEHICLES USED IN CARPOOLING(1) BY TIME LEAVING
HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 2
Universe: Workers 16 years and over in a carpool
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

3-5. IV-3 WORKERS PER CARPOOL(1) BY TIME LEAVING HOME TO GO TO WORK-TOTAL
AND PEAK PERIOD(2) 2
Universe: Workers 16 years and over in a carpool
Total, time leaving home to go to work
Peak period (6:30 a.m. to 8:29 a.m.)

3-6. N/A MEDIAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19)
BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
  Workers who did not work at home
  Drove alone
  In 2-person carpool
  In 3-person carpool
  In 4-person carpool
  In 5-person carpool
  In 6-person carpool
  In 7-to-9-person carpool
  In 10-or-more-person carpool
  Bus or trolley bus
  Streetcar or trolley car
  Subway or elevated
  Railroad
  Ferryboat
  Taxicab
  Motorcycle
  Bicycle
  Walked
  Other means
Peak period (6:30 a.m. to 8:29 a.m.):
  (Repeat MEANS OF TRANSPORTATION)

3-7. IV-2 MEAN TRAVEL TIME TO WORK IN MINUTES(1) BY MEANS OF TRANSPORTATION(19)
BY TIME LEAVING HOME TO GO TO WORK-TOTAL AND PEAK PERIOD(2) 38
Universe: Workers 16 years and over who did not work at home
Total, time leaving home to go to work:
  Workers who did not work at home
  Drove alone
  In 2-person carpool
  In 3-person carpool
  In 4-person carpool
  In 5-person carpool
  In 6-person carpool

In 7-to-9-person carpool
In 10-or-more-person carpool
Bus or trolley bus
Streetcar or trolley car
Subway or elevated
Railroad
Ferryboat
Taxicab
Motorcycle
Bicycle
Walked
Other means
Peak period (6:30 a.m. to 8:29 a.m.):
(Repeat MEANS OF TRANSPORTATION)

TOTAL NUMBER OF DATA CELLS IN PART 3: 122

PART 3 RECORD SELECTION CRITERIA: All workers who live in the CTPP region regardless of where they work, and all workers who work in the CTPP region regardless of where they live.

1990 CENSUS QUESTIONNAIRE

This booklet shows the content of the two main questionnaires being used in the 1990 U.S. Census. See the explanatory notes on page 2.

CENSUS '90

OFFICIAL 1990 U.S. CENSUS FORM

Thank you for taking time to complete and return this census questionnaire. It's important to you, your community, and the Nation.

The law requires answers but guarantees privacy.

By law (Title 13, U.S. Code), you're required to answer the census questions to the best of your knowledge. However, the same law guarantees that your census form remains confidential. For 72 years--or until the year 2062--only Census Bureau employees can see your form. No one else--no other government body, no police department, no court system or welfare agency--is permitted to see this confidential information under any circumstances.

How to get started--and get help.

Start by listing on the next page the names of all the people who live in your home. Please answer all questions with a black lead pencil. You'll find detailed instructions for answering the census in the enclosed guide. If you need additional help, call the toll-free telephone number to the left, near your address.

Please answer and return your form promptly.

Complete your form and return it by April 1, 1990 in the postage-paid envelope provided. Avoid the inconvenience of having a census taker visit your home.

Again, thank you for answering the 1990 Census. Remember: Return the completed form by April 1, 1990.

Para personas de habla hispana –
(For Spanish-speaking persons)

Si usted desea un cuestionario del censo en español, llame sin cargo alguno al siguiente número: 1-800-XXXXXXX
(o sea 1-800-XXX-XXXX)

U.S. Department of Commerce
BUREAU OF THE CENSUS

FORM D-61

OMB No. 0607-0628
Approval Expires 07/31/91

Left margin, rotated text:

Make sure that before you seal the envelope the address of the U.S. Census Office shows through the window.

instruction guide or call
1-800-XXX-XXXX

● Please fill it out and mail it back by Census Day, April 1, 1990

Vertical text:

If wrong apartment identification, please write the correct number or location above.

Watermark: INFORMATIONAL COPY

The 1990 census must count every person at his or her "usual residence." This means the place where the person lives and sleeps most of the time.

1a. List on the numbered lines below the name of each person living here on **Sunday, April 1,** including all persons staying here who have no other home. If EVERYONE at this address is staying here temporarily and usually lives somewhere else, follow the instructions given in question 1b below.

Include

- Everyone who usually lives here such as family members, housemates and roommates, foster children, roomers, boarders, and live-in employees
- Persons who are temporarily away on a business trip, on vacation, or in a general hospital
- College students who stay here while attending college
- Persons in the Armed Forces who live here
- Newborn babies still in the hospital
- Children in boarding schools below the college level
- Persons who stay here most of the week while working even if they have a home somewhere else
- Persons with no other home who are staying here on April 1

Do NOT include

- Persons who usually live somewhere else

- Persons who are away in an institution such as a prison, mental hospital, or a nursing home
- College students who live somewhere else while attending college
- Persons in the Armed Forces who live somewhere else

- Persons who stay somewhere else most of the week while working

Print last name, first name, and middle initial for each person. Begin on line 1 with the household member (or one of the household members) in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start on line 1 with any adult household member.

	LAST	FIRST	INITIAL		LAST	FIRST	INITIAL
1				**7**			
2				**8**			
3				**9**			
4				**10**			
5				**11**			
6				**12**			

1b. If EVERYONE is staying here only temporarily and usually lives somewhere else, list the name of each person on the numbered lines above, fill this circle ⟶ ○ and print their usual address below. **DO NOT PRINT THE ADDRESS LISTED ON THE FRONT COVER.**

House number	Street or road/Rural route and box number	Apartment number
City	State	ZIP Code
County or foreign country	Names of nearest intersecting streets or roads	

NOW PLEASE OPEN THE FLAP TO PAGE 2 AND ANSWER ALL QUESTIONS FOR THE FIRST 7 PEOPLE LISTED. USE A BLACK LEAD PENCIL ONLY.

QUESTIONS ASKED OF ALL PERSONS

PLEASE ALSO ANSWER HOUSING QUESTIONS ON PAGE 3

	PERSON 1	PERSON 2	PERSON 3	PERSON 4	PERSON 5	PERSON 6

Please fill one column for each person listed in Question 1a on page 1.

Last name
First name
Middle initial

How is this person related to PERSON 1?

Fill ONE circle for each person.

START in this column with the household member (or one of the members) in whose name the home is owned, being bought, or rented.

If Other relative of person in column 1, fill circle and print exact relationship, such as mother-in-law, grandparent, son-in-law, niece, cousin, and so on.

If there is no such person, start in this column with any adult household member.

If a RELATIVE of Person 1:
- Husband/wife
- Natural-born son/daughter
- Stepson/stepdaughter
- Brother/sister
- Father/mother
- Grandchild
- Other relative

If NOT RELATED to Person 1:
- Roomer, boarder, or foster child
- Housemate, roommate
- Unmarried partner
- Other nonrelative

Sex

Fill ONE circle for each person.
- Male
- Female

Race

Fill ONE circle for the race that the person considers himself/herself to be.

If Indian (Amer.), print the name of the enrolled or principal tribe.

- White
- Black or Negro
- Indian (Amer.) (Print the name of the enrolled or principal tribe.)
- Eskimo
- Aleut

Asian or Pacific Islander (API)
- Chinese
- Filipino
- Hawaiian
- Korean
- Vietnamese
- Japanese
- Asian Indian
- Samoan
- Guamanian
- Other API

If Other Asian or Pacific Islander (API), print one group, for example: Hmong, Fijian, Laotian, Thai, Tongan, Pakistani, Cambodian, and so on.

If Other race, print race.
- Other race (Print race)

Age and year of birth

a. Print each person's age at last birthday. Fill in the matching circle below each box.

b. Print each person's year of birth and fill the matching circle below each box.

Marital status

Fill ONE circle for each person.
- Now married
- Widowed
- Divorced
- Separated
- Never married

Is this person of Spanish/Hispanic origin?

Fill ONE circle for each person.
- No (not Spanish/Hispanic)
- Yes, Mexican, Mexican-Am., Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, other Spanish/Hispanic

(Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.)

If Yes, other Spanish/Hispanic, print one group.

FOR CENSUS USE

EXPLANATORY NOTES

This booklet shows the content of the two 1990 census questionnaires being delivered by mail. The content of these forms was determined after review of the 1980 census experience, extensive consultation with many government and private users of census data, and a series of experimental censuses and surveys in which various alternatives were tested.

Two principal types of data-collection forms — a 100-percent questionnaire (or "short form"), and a sample questionnaire (or "long form") — are being used in the census. Each household receives one of the two questionnaires.

Short form — This questionnaire contains 7 population questions and 7 housing questions, shown on pages 1–3 of this booklet. On average, about 5 in every 6 households will receive the short form. For the average household, this form will take an estimated 14 minutes to complete.

Long form — This questionnaire has all of the short-form questions plus housing questions H8 through H26, shown on pages 4 and 5, and population questions 8 through 33, shown on pages 6 and 7. The population questions are repeated for each member of the household but these pages were not reproduced in this booklet. A statistical sample of approximately 1 in every 6 households will receive the long form. For the average household, this form will take an estimated 43 minutes to complete.

An instruction guide accompanies each questionnaire to help the respondents complete the form, and a preaddressed envelope is provided for returning the questionnaire.

For additional information about the 1990 U.S. Census, please write the Director, Bureau of the Census, Washington, DC 20233.

PERSON 7

name _____

name _____ Middle Initial

RELATIVE of Person 1:
- O Husband/wife
- O Natural-born or adopted son/daughter
- O Stepson/ stepdaughter
- O Brother/sister
- O Father/mother
- O Grandchild
- O Other relative ⌐

NOT RELATED to Person 1:
- O Roomer, boarder, or foster child
- O Housemate, roommate ■
- O Unmarried partner
- O Other nonrelative

- O Male
- O Female

- O White
- O Black or Negro
- O Indian (Amer.) (Print the name of the enrolled or principal tribe.)⌐
- O Eskimo
- O Aleut

Asian or Pacific Islander (API)
- O Chinese
- O Filipino ■
- O Hawaiian
- O Korean
- O Vietnamese
- O Japanese
- O Asian Indian
- O Samoan
- O Guamanian
- O Other API ⌐

- O Other race (Print race)⌐

Age | **b. Year of birth**

1

O 0 O 0 O	1 ● 8 O 0 O 0 O
O 1 O 1 O	9 O 1 O 1 O
2 O 2 O	2 O 2 O
3 O 3 O	3 O 3 O
4 O 4 O	4 O 4 O
5 O 5 O	5 O 5 O
6 O 6 O	6 O 6 O
7 O 7 O	7 O 7 O
8 O 8 O	8 O 8 O
9 O 9 O	9 O 9 O

- O Now married
- O Widowed
- O Divorced
- O Separated
- O Never married

- O No (not Spanish/Hispanic)
- O Yes, Mexican, Mexican-Am., Chicano
- O Yes, Puerto Rican ■
- O Yes, Cuban
- O Yes, other Spanish/Hispanic (Print one group, for example: Argentinean, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.) ⌐

- O
- O

H1a. Did you leave anyone out of your list of persons for Question 1a on page 1 because you were not sure if the person should be listed — for example, someone temporarily away on a business trip or vacation, a newborn baby still in the hospital, or a person who stays here once in a while and has no other home?
- O Yes, please print the name(s) and reason(s). ⌐
- O No

_____

b. Did you include anyone in your list of persons for Question 1a on page 1 even though you were not sure that the person should be listed — for example, a visitor who is staying here temporarily or a person who usually lives somewhere else?
- O Yes, please print the name(s) and reason(s). ⌐
- O No

_____

H2. Which best describes this building? Include all apartments, flats, etc., even if vacant.
- O A mobile home or trailer ■
- O A one-family house detached from any other house
- O A one-family house attached to one or more houses
- O A building with 2 apartments
- O A building with 3 or 4 apartments
- O A building with 5 to 9 apartments
- O A building with 10 to 19 apartments
- O A building with 20 to 49 apartments
- O A building with 50 or more apartments
- O Other

H3. How many rooms do you have in this house or apartment? Do NOT count bathrooms, porches, balconies, foyers, halls, or half-rooms.
- O 1 room ■
- O 2 rooms
- O 3 rooms
- O 4 rooms
- O 5 rooms
- O 6 rooms
- O 7 rooms
- O 8 rooms
- O 9 or more rooms

H4. Is this house or apartment —
- O Owned by you or someone in this household with a mortgage or loan?
- O Owned by you or someone in this household free and clear (without a mortgage)?
- O Rented for cash rent?
- O Occupied without payment of cash rent?

If this is a ONE-FAMILY HOUSE —
H5a. Is this house on ten or more acres?
- O Yes
- O No

b. Is there a business (such as a store or barber shop) or a medical office on this property?
- O Yes
- O No

Answer only if you or someone in this household OWNS OR IS BUYING this house or apartment —
H6. What is the value of this property; that is, how much do you think this house and lot or condominium unit would sell for if it were for sale?
- O Less than $10,000
- O $10,000 to $14,999
- O $15,000 to $19,999
- O $20,000 to $24,999
- O $25,000 to $29,999
- O $30,000 to $34,999
- O $35,000 to $39,999
- O $40,000 to $44,999
- O $45,000 to $49,999
- O $50,000 to $54,999
- O $55,000 to $59,999
- O $60,000 to $64,999
- O $65,000 to $69,999
- O $70,000 to $74,999
- O $75,000 to $79,999
- O $80,000 to $89,999
- O $90,000 to $99,999
- O $100,000 to $124,999
- O $125,000 to $149,999
- O $150,000 to $174,999
- O $175,000 to $199,999
- O $200,000 to $249,999
- O $250,000 to $299,999
- O $300,000 to $399,999
- O $400,000 to $499,999
- O $500,000 or more

Answer only if you PAY RENT for this house or apartment —
H7a. What is the monthly rent?
- O Less than $80
- O $80 to $99
- O $100 to $124
- O $125 to $149
- O $150 to $174
- O $175 to $199
- O $200 to $224 ■
- O $225 to $249
- O $250 to $274
- O $275 to $299
- O $300 to $324
- O $325 to $349
- O $350 to $374
- O $375 to $399
- O $400 to $424
- O $425 to $449
- O $450 to $474
- O $475 to $499
- O $500 to $524
- O $525 to $549
- O $550 to $599
- O $600 to $649
- O $650 to $699
- O $700 to $749
- O $750 to $999
- O $1,000 or more

b. Does the monthly rent include any meals?
- O Yes
- O No

FOR CENSUS USE

A. Total persons

⊘	⊘
I	I
2	2
■	3
	4
	5
	6
	7
	8
	9

B. Type of unit

Occupied	Vacant
O First form	O Regular
O Cont'n	O Usual home elsewhere

C1. Vacancy status
- O For rent
- O For sale only
- O Rented or sold, not occupied
- O For seas/ rec/occ
- O For migrant workers
- O Other vacant

C2. Is this unit boarded up?
- O Yes
- O No

D. Months vacant
- O Less than 1
- O 1 up to 2
- O 2 up to 6
- O 6 up to 12
- O 12 up to 24
- O 24 or more

E. Complete after
- O LR O TC O QA JIC 1
- O P/F O RE O I/T O
- O MV O ED O EN ■
- O P0 O P3 O P6
- O P1 O P4 O IA JIC 2
- O P2 O P5 O SM O

F. Cov.
- O 1b O 1a O 7 O H1

G. DO | **ID** ■

⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘	⊘
I	I	I	I	I	I	I	I	I	I
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9

H8. When did the person listed in column 1 on page 2 move into this house or apartment?

- O 1989 or 1990
- O 1985 to 1988
- O 1980 to 1984
- O 1970 to 1979
- O 1960 to 1969
- O 1959 or earlier ■

H9. How many bedrooms do you have; that is, how many bedrooms would you list if this house or apartment were on the market for sale or rent?

- O No bedroom
- O 1 bedroom
- O 2 bedrooms
- O 3 bedrooms
- O 4 bedrooms
- O 5 or more bedrooms ■

H10. Do you have COMPLETE plumbing facilities in this house or apartment; that is, 1) hot and cold piped water, 2) a flush toilet, and 3) a bathtub or shower?

- O Yes, have all three facilities
- O No

H11. Do you have COMPLETE kitchen facilities; that is, 1) a sink with piped water, 2) a range or cookstove, and 3) a refrigerator?

- O Yes
- O No ■

H12. Do you have a telephone in this house or apartment?

- O Yes
- O No

H13. How many automobiles, vans, and trucks of one-ton capacity or less are kept at home for use by members of your household?

- O None ■
- O 1
- O 2
- O 3
- O 4
- O 5
- O 6
- O 7 or more

H14. Which FUEL is used MOST for heating this house or apartment?

- O Gas: from underground pipes serving the neighborhood
- O Gas: bottled, tank, or LP
- O Electricity
- O Fuel oil, kerosene, etc.
- O Coal or coke
- O Wood
- O Solar energy
- O Other fuel
- O No fuel used ■

H15. Do you get water from —

- O A public system such as a city water department, or private company?
- O An individual drilled well?
- O An individual dug well?
- O Some other source such as a spring, creek, river, cistern, etc.?

H16. Is this building connected to a public sewer?

- O Yes, connected to public sewer
- O No, connected to septic tank or cesspool
- O No, use other means

H17. About when was this building first built?

- O 1989 or 1990
- ■ O 1985 to 1988
- O 1980 to 1984
- O 1970 to 1979
- O 1960 to 1969
- O 1950 to 1959
- O 1940 to 1949
- O 1939 or earlier
- O Don't know

H18. Is this house or apartment part of a condominium?

- O Yes
- O No

If you live in an apartment building, skip to H20.

H19a. Is this house on less than 1 acre?

- O Yes — *Skip to H20*
- O No ■

b. In 1989, what were the actual sales of all agricultural products from this property?

- O None
- O $1 to $999
- O $1,000 to $2,499
- O $2,500 to $4,999
- O $5,000 to $9,999
- O $10,000 or more

H20. What are the yearly costs of utilities and fuels for this house or apartment? If you have lived here less than 1 year, estimate the yearly cost.

a. Electricity

$ _____ .00
Yearly cost — Dollars

OR

- O Included in rent or in condominium fee
- O No charge or electricity not used

b. Gas ■

$ _____ .00
Yearly cost — Dollars

OR

- O Included in rent or in condominium fee
- O No charge or gas not used

c. Water

$ _____ .00
Yearly cost — Dollars

OR

- O Included in rent or in condominium fee
- O No charge

d. Oil, coal, kerosene, wood, etc. ■

$ _____ .00
Yearly cost — Dollars

OR

- O Included in rent or in condominium fee
- O No charge or these fuels not used

The sample questionnaire contains housing questions H8 to H26 shown here on pages 4 and 5.

INSTRUCTION:

Answer questions H21 TO H26, if this is a one-family house, a condominium, or a mobile home that someone in this household OWNS OR IS BUYING; otherwise, go to page 6.

H21. What were the real estate taxes on THIS property last year?

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Yearly amount — Dollars
```

OR

○ None

H22. What was the annual payment for fire, hazard, and flood insurance on THIS property?

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Yearly amount — Dollars
```

OR

○ None

H23a. Do you have a mortgage, deed of trust, contract to purchase, or similar debt on THIS property?

○ Yes, mortgage, deed of trust, or similar debt ⎫
  ⎬ *Go to H23b*
○ Yes, contract to purchase ⎭

○ No — *Skip to H24a*

b. How much is your regular monthly mortgage payment on THIS property? Include payment only on first mortgage or contract to purchase.

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Monthly amount — Dollars
```

OR

○ No regular payment required — *Skip to H24a*

c. Does your regular monthly mortgage payment include payments for real estate taxes on THIS property?

○ Yes, taxes included in payment
○ No, taxes paid separately or taxes not required

d. Does your regular monthly mortgage payment include payments for fire, hazard, or flood insurance on THIS property?

○ Yes, insurance included in payment
○ No, insurance paid separately or no insurance

H24a. Do you have a second or junior mortgage or a home equity loan on THIS property?

○ Yes
○ No — *Skip to H25*

b. How much is your regular monthly payment on all second or junior mortgages and all home equity loans?

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Monthly amount — Dollars
```

OR

○ No regular payment required

Answer ONLY if this is a CONDOMINIUM —

H25. What is the monthly condominium fee?

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Monthly amount — Dollars
```

Answer ONLY if this is a MOBILE HOME —

H26. What was the total cost for personal property taxes, site rent, registration fees, and license fees on this mobile home and its site last year? Exclude real estate taxes.

```
┌──────────────────┐
│ $            .00 │
└──────────────────┘
  Yearly amount — Dollars
```

Please turn to page 6. ➡

QUESTIONS ASKED OF A SAMPLE OF HOUSEHOLDS

PERSON 1

Last name   First name   Middle initial

8. In what U.S. State or foreign country was this person born? ⌐

(Name of State or foreign country; or Puerto Rico, Guam, etc.)

9. Is this person a CITIZEN of the United States?

- ○ Yes, born in the United States — *Skip to 11*
- ○ Yes, born in Puerto Rico, Guam, the U.S. Virgin Islands, or Northern Marianas
- ○ Yes, born abroad of American parent or parents
- ○ Yes, U.S. citizen by naturalization
- ○ No, not a citizen of the United States

10. When did this person come to the United States to stay?

- ○ 1987 to 1990 ■
- ○ 1985 or 1986
- ○ 1982 to 1984
- ○ 1980 or 1981
- ○ 1975 to 1979
- ○ 1970 to 1974
- ○ 1965 to 1969
- ○ 1960 to 1964
- ○ 1950 to 1959
- ○ Before 1950

11. At any time since February 1, 1990, has this person attended regular school or college? Include only nursery school, kindergarten, elementary school, and schooling which leads to a high school diploma or a college degree.

- ○ No, has not attended since February 1
- ○ Yes, public school, public college
- ○ Yes, private school, private college ■

12. How much school has this person COMPLETED? Fill ONE circle for the highest level COMPLETED or degree RECEIVED. If currently enrolled, mark the level of previous grade attended or highest degree received.

- ○ No school completed
- ○ Nursery school ■
- ○ Kindergarten
- ○ 1st, 2nd, 3rd, or 4th grade
- ○ 5th, 6th, 7th, or 8th grade
- ○ 9th grade
- ○ 10th grade
- ○ 11th grade
- ○ 12th grade, NO DIPLOMA
- ○ HIGH SCHOOL GRADUATE - high school DIPLOMA or the equivalent (For example: GED)
- ○ Some college but no degree
- ○ Associate degree in college - Occupational program
- ○ Associate degree in college - Academic program
- ○ Bachelor's degree (For example: BA, AB, BS)
- ○ Master's degree (For example: MA, MS, MEng, MEd, MSW, MBA)
- ○ Professional school degree (For example: MD, DDS, DVM, LLB, JD) ■
- ○ Doctorate degree (For example: PhD, EdD)

13. What is this person's ancestry or ethnic origin? ⌐
(See instruction guide for further information.)

(For example: German, Italian, Afro-Amer., Croatian, Cape Verdean, Dominican, Ecuadoran, Haitian, Cajun, French Canadian, Jamaican, Korean, Lebanese, Mexican, Nigerian, Irish, Polish, Slovak, Taiwanese, Thai, Ukrainian, etc.)

14a. Did this person live in this house or apartment 5 years ago (on April 1, 1985)?

- ○ Born after April 1, 1985 — *Go to questions for the next person*
- ○ Yes — *Skip to 15a*
- ○ No

b. Where did this person live 5 years ago (on April 1, 1985)?

(1) Name of U.S. State or foreign country ⌐

(If outside U.S., print answer above and skip to 15a.)

(2) Name of county in the U.S. ⌐

(3) Name of city or town in the U.S. ⌐

(4) Did this person live inside the city or town limits?

- ○ Yes
- ○ No, lived outside the city/town limits

15a. Does this person speak a language other than English at home?

- ○ Yes
- ○ No — *Skip to 16*

b. What is this language? ⌐

(For example: Chinese, Italian, Spanish, Vietnamese)

c. How well does this person speak English?

- ○ Very well
- ○ Well
- ○ Not well
- ○ Not at all

16. When was this person born?

- ○ Born before April 1, 1975 — *Go to 17a*
- ○ Born April 1, 1975 or later — *Go to questions for the next person*

17a. Has this person ever been on active-duty military service in the Armed Forces of the United States or ever been in the United States military Reserves or the National Guard? If service was in Reserves or National Guard only, see instruction guide.

- ○ Yes, now on active duty
- ○ Yes, on active duty in past, but not now
- ○ Yes, service in Reserves or National Guard only — *Skip to 18*
- ○ No — *Skip to 18*

b. Was active-duty military service during — Fill a circle for each period in which this person served.

- ○ September 1980 or later
- ○ May 1975 to August 1980
- ○ Vietnam era (August 1964—April 1975)
- ○ February 1955—July 1964
- ○ Korean conflict (June 1950—January 1955)
- ○ World War II (September 1940—July 1947)
- ○ World War I (April 1917—November 1918)
- ○ Any other time

c. In total, how many years of active-duty military service has this person had?

[ ] Years

---

18. Does this person have a physical, mental, or other health condition that has lasted for 6 or more months and which —

a. Limits the kind or amount of work this person can do at a job?

- ○ Yes
- ○ No

b. Prevents this person from working at a job?
■
- ○ Yes
- ○ No

19. Because of a health condition that has lasted for 6 or more months, does this person have any difficulty —

a. Going outside the home alone, for example, to shop or visit a doctor's office?

- ○ Yes
- ○ No

b. Taking care of his or her own personal needs, such as bathing, dressing, or getting around inside the home? ■

- ○ Yes
- ○ No

If this person is a female —
20. How many babies has she ever had, not counting stillbirths? Do not count her stepchildren or children she has adopted.

None 1 2 3 4 5 6 7 8 9 10 11 12 or more
○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ ○

21a. Did this person work at any time LAST WEEK?

- ○ Yes — Fill this circle if this person worked full time or part time. (Count part-time work such as delivering papers, or helping without pay in a family business or farm. Also count active duty in the Armed Forces.)
- ○ No — Fill this circle if this person did not work, or did only own housework, school work, or volunteer work. — *Skip to 25* ■

b. How many hours did this person work LAST WEEK (at all jobs)? Subtract any time off; add overtime or extra hours worked.

[ ] Hours

22. At what location did this person work LAST WEEK? If this person worked at more than one location, print where he or she worked most last week.

a. Address (Number and street) ⌐

(If the exact address is not known, give a description of the location such as the building name or the nearest street or intersection.)

b. Name of city, town, or post office ⌐

c. Is the work location inside the limits of that city or town?

- ○ Yes
- ○ No, outside the city/town limits

d. County ⌐

e. State ⌐   **f. ZIP Code** ⌐

23a. How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, fill the circle of the one used for most of the distance.

- O Car, truck, or van
- O Bus or trolley bus
- O Streetcar or trolley car
- O Subway or elevated
- O Railroad
- O Ferryboat
- O Taxicab
- O Motorcycle
- O Bicycle
- O Walked
- O Worked at home — *Skip to 28*
- O Other method

If "car, truck, or van" is marked in 23a, go to 23b. Otherwise, skip to 24a.

b. How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?

- O Drove alone
- O 2 people
- O 3 people
- O 4 people
- O 5 people
- O 6 people
- O 7 to 9 people
- O 10 or more people

24a. What time did this person usually leave home to go to work LAST WEEK?

- O a.m.
- O p.m.

b. How many minutes did it usually take this person to get from home to work LAST WEEK?

Minutes — *Skip to 28*

25. Was this person TEMPORARILY absent or on layoff from a job or business LAST WEEK?

- O Yes, on layoff
- O Yes, on vacation, temporary illness, labor dispute, etc.
- O No

26a. Has this person been looking for work during the last 4 weeks?

- O Yes
- O No — *Skip to 27*

b. Could this person have taken a job LAST WEEK if one had been offered?

- O No, already has a job
- O No, temporarily ill
- O No, other reasons (in school, etc.)
- O Yes, could have taken a job

27. When did this person last work, even for a few days?

- O 1990
- O 1989
- O 1988
- O 1985 to 1987
} *Go to 28*

- O 1980 to 1984
- O 1979 or earlier
- O Never worked
} *Skip to 32*

28-30. CURRENT OR MOST RECENT JOB ACTIVITY. Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business since 1985.

28. Industry or Employer

a. For whom did this person work? If now on active duty in the Armed Forces, fill this circle ⟶ O and print the branch of the Armed Forces.

(Name of company, business, or other employer)

b. What kind of business or industry was this? Describe the activity at location where employed.

(For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, retail bakery)

c. Is this mainly — Fill ONE circle

- O Manufacturing
- O Wholesale trade
- O Retail trade
- O Other (agriculture, construction, service, government, etc.)

29. Occupation

a. What kind of work was this person doing?

(For example: registered nurse, personnel manager, supervisor of order department, gasoline engine assembler, cake icer)

b. What were this person's most important activities or duties?

(For example: patient care, directing hiring policies, supervising order clerks, assembling engines, icing cakes)

30. Was this person — Fill ONE circle

- O Employee of a PRIVATE FOR PROFIT company or business or of an individual, for wages, salary, or commissions
- O Employee of a PRIVATE NOT-FOR-PROFIT, tax-exempt, or charitable organization
- O Local GOVERNMENT employee (city, county, etc.)
- O State GOVERNMENT employee
- O Federal GOVERNMENT employee
- O SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm
- O SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm
- O Working WITHOUT PAY in family business or farm

31a. Last year (1989), did this person work, even for a few days, at a paid job or in a business or farm?

- O Yes
- O No — *Skip to 32*

b. How many weeks did this person work in 1989? Count paid vacation, paid sick leave, and military service.

Weeks

c. During the weeks WORKED in 1989, how many hours did this person usually work each week?

Hours

32. INCOME IN 1989 —
Fill the "Yes" circle below for each income source received during 1989. Otherwise, fill the "No" circle. If "Yes," enter the total amount received during 1989.
For income received jointly, see instruction guide.
If exact amount is not known, please give best estimate.
If net income was a loss, write "Loss" above the dollar amount.

a. Wages, salary, commissions, bonuses, or tips from all jobs — Report amount before deductions for taxes, bonds, dues, or other items.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

b. Self-employment income from own nonfarm business, including proprietorship and partnership — Report NET income after business expenses.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

c. Farm self-employment income — Report NET income after operating expenses. Include earnings as a tenant farmer or sharecropper.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

d. Interest, dividends, net rental income or royalty income, or income from estates and trusts — Report even small amounts credited to an account.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

e. Social Security or Railroad Retirement

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

f. Supplemental Security Income (SSI), Aid to Families with Dependent Children (AFDC), or other public assistance or public welfare payments.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

g. Retirement, survivor, or disability pensions — Do NOT include Social Security.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

h. Any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support, or alimony — Do NOT include lump-sum payments such as money from an inheritance or the sale of a home.

- O Yes ⟶ $ .00
- O No
Annual amount — Dollars

33. What was this person's total income in 1989? Add entries in questions 32a through 32h; subtract any losses. If total amount was a loss, write "Loss" above amount.

- O None OR $ .00
Annual amount — Dollars

9 8 7 6 5 4 3 2 ● 0

9 8 ● 6 5 4 3 2 1 0

Please turn to the next page and answer questions for Person 2 on page 2. If this is the last person listed in question 1a on page 1, go to the back of the form.

Please make sure you have . . .

1. FILLED this form completely.

2. ANSWERED Question 1a on page 1.

3. ANSWERED Questions 2 through 7 for each person you listed in Question 1a.

4. ANSWERED Questions H1a through H26 on pages 3, 4, and 5.

5. ANSWERED the questions on pages 6 through 19 for each person you listed in Question 1a.

Also . . .

6. PRINT here the name of a household member who filled the form, the date the form was completed, and the telephone number at which a person in this household can be called.

Name	Date

| Telephone number ⟶ | Area code | Number | ○ Day
○ Night |

Then . . .

7. FOLD the form the way it was sent to you.

8. MAIL it back by April 1, or as close to that date as possible, in the envelope provided; no stamp is needed. When you insert your completed questionnaire, please make sure that the address of the U.S. Census Office can be seen through the window on the front of the envelope.

NOTE — If you have listed more than 7 persons in Question 1a, please make sure that you have filled the form for the first 7 people. Then mail back this form. A census taker will call to obtain the information for the other people.

Thank you very much.